



## Getting Started Guide



RATIONAL

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SA/ERP Metadata Explorer

# Getting Started Guide

IBM RATIONAL

# User Guide – SA/ERP

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# Table of Contents

<b>Introduction</b>	<b>3</b>
How does SA/ERP work? _____	3
Which Enterprise Applications and Versions does SA/ERP address? _____	4
SA/ERP manual set _____	4
<b>Installation</b>	<b>5</b>
SA/ERP setup tasks _____	5
SA/ERP system and resource requirements _____	6
System requirements _____	6
Resource requirements _____	6
How SA/ERP communicates with databases _____	6
Creating the SA/ERP database _____	8
To create the SA/ERP database _____	8
Installing SA/ERP _____	9
To install SA/ERP _____	9
Using the Repository Manager to configure SA/ERP _____	10
To Configure a new SA/ERP repository _____	10
Repository Maintenance _____	16
Configuring SA/ERP to connect to an SAP system _____	17
Choosing the right SAP extraction method _____	17
Connecting to SAP using the Direct Connection Method _____	18
Connecting to SAP using the RFC Connection Method _____	18
Required Access Rights for the SAP User used by SA/ERP _____	18
Entering the extraction method choice into SA/ERP _____	19
Entering the SAP database connection settings _____	20
Entering the SAP RFC connection settings _____	24
Connecting to PeopleSoft Enterprise _____	25
Choosing the PeopleSoft database type _____	25
Entering the PeopleSoft database connection settings _____	26
Connecting to J.D.Edwards EnterpriseOne _____	30
To produce the XML Files from the EnterpriseOne system _____	30
Choosing the EnterpriseOne database type _____	31
Entering the EnterpriseOne database connection settings _____	32
Opening a SA/ERP Repository _____	35
To Open an existing Repository _____	35
<b>Extracting Metadata</b>	<b>36</b>
Extracting metadata from SAP _____	36
Why would I use the Export/Import options? _____	39

Extracting metadata from PeopleSoft Enterprise _____	41
Extracting metadata from J.D.Edwards EnterpriseOne _____	45
<b>Quick Tour of SA/ERP's Features</b>	<b>49</b>
Browsing the metadata _____	49
Fields _____	51
Relationships _____	52
Indexes _____	53
Using Subject Areas _____	54
Adding tables to a Subject Area _____	55
Navigating tables via the Application Hierarchy _____	56
Exporting to third party tools _____	57
<b>Installing the SAP ABAP Function</b>	<b>59</b>
Create a Development Class _____	59
Create a Function Group _____	60
Create the ABAP Function Module _____	61
Testing the Function _____	64
<b>The Saphi.ini file</b>	<b>66</b>
File usage _____	66
File structure _____	66
<b>Using SAPRFC.ini with SA/ERP</b>	<b>69</b>
Creating the SAPRFC.ini file _____	69
Using SAPRFC.ini from SA/ERP _____	70
<b>Applying a patch to the DB2 ODBC driver</b>	<b>72</b>
<b>Index</b>	<b>75</b>

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## Introduction

*An overview of the SA/ERP product and the Enterprise Applications it supports*

**S**A/ERP is a metadata exploration tool for enterprise applications like SAP, PeopleSoft Enterprise, and J.D.Edwards EnterpriseOne. SA/ERP makes the data definitions from these major ERP (Enterprise Resource Planning) packages available in an easy to understand form, allowing users to explore ERP data structures without specialist application knowledge.

This manual describes how to install SA/ERP, how to extract and manipulate the ERP metadata, and gives an overview of the main product features.

Please refer to the '*SA/ERP User Guide*' for full details on all product features.

### How does SA/ERP work?

Using the SA/ERP product involves two distinct stages; the extraction of metadata from the chosen environment; the exploration of that extracted metadata. The metadata extraction stage is performed by attaching to the 'source' package (e.g. SAP) where the required metadata is stored. The exact method of achieving this is dependent on the source product. The following sections describe this process in detail. The extracted metadata is used to populate the SA/ERP Repository. This is a set of relational tables where the various extracted objects (e.g. tables, relationships, indexes...) are stored. A range of popular RDBMS' can be used for the Repository, including SQL Server and Oracle used for System Architect repositories. Once the metadata is extracted, the second stage of SA/ERP usage comes into effect: the browsing of the metadata.

The browsing stage is the real value of the SA/ERP environment. The user interface enables users to search for required data items like tables or columns, explore relationships between tables and create subsets of the metadata for later review, or optionally, for export into a range of tool environments.

## Which Enterprise Applications and Versions does SA/ERP address?

SA/ERP supports the following Enterprise Applications:

- SAP version 3.1 and above
- SAP Business Warehouse (BW) version 2.2 and above (requires SA/ERP Cube Wizard)
- PeopleSoft Enterprise applications from Version 8 and above
- J.D.Edwards EnterpriseOne Xe and above
- Siebel version 6.5 and above (requires SA/ERP for Siebel Extractor)

## SA/ERP manual set

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

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

## Installation

*How to install and configure the SA/ERP software, ready for metadata extraction*

The SA/ERP installation process requires a number of steps to be performed, in addition to the actual ‘setup’ of the SA/ERP product itself. The following sections describe these steps in detail. Please take the time to read and understand this chapter before embarking on the installation.

### SA/ERP setup tasks

- Check system and resource requirements. Ensure that your system meets the minimum requirements necessary to install and run SA/ERP. There may also be additional personnel and hardware/software resources required that you need to assemble before starting the installation. See ‘SA/ERP System Requirements’ below for more information.
- Create a database for storing the SA/ERP metadata. SA/ERP uses a range of RDBMS types to instantiate a database where the extracted metadata is stored. Typically, you can use a database that exists as a System Architect encyclopedia in SQL Server, MSDE, or Oracle. See ‘Creating the SA/ERP Database’ below for more information.
- Install SA/ERP. See ‘Installing SA/ERP’ below for more information.
- Configure the software. There are a series of configuration tasks that must be performed to allow SA/ERP to talk to the SA/ERP repository. See ‘Using the Repository Manager to configure SA/ERP’ below.
- Connect to the enterprise application. The final setup task is to connect to the Enterprise Application where the metadata is stored and perform an extraction. See ‘Connecting to your Enterprise Application’ below.



## SA/ERP system and resource requirements

Before installing, ensure that you have the necessary system and resource requirements, as detailed below. It is also useful to understand how SA/ERP communicates with the RDBMS. See 'How SA/ERP communicates with databases' below for more information on this, including the required software components.

### System requirements

The PC on which SA/ERP is to be installed should have the following:

- A minimum of 256 Megabytes of RAM
- 30 Megabytes of hard disk space for the SA/ERP Software
- The appropriate client connectivity software (e.g. Oracle Net 9) for connection to the SA/ERP Repository database and (unless ABAP/RFC extraction is to be used for SAP) the Enterprise Application database. See also the section 'How SA/ERP communicates with databases' below.
- Where SA/ERP is being used with SAP, the SAP GUI client software needs to be installed on the PC, if the metadata is to be extracted from SAP via ABAP/RFCs. This must *not* be the Java version of SAP GUI.

### Resource requirements

A full SA/ERP installation may require the involvement of a range of personnel and resources across the organisation. This section lists the main resources you should have in place before installing SA/ERP

- A database for storing the extracted metadata. You may need to contact a Database Administrator (DBA) to create a new database for the SA/ERP Repository, and to grant appropriate access rights to that database. This database must use a non-Unicode character set. System Architect encyclopaedias can be used for this database.
- Access to the Enterprise Application. SA/ERP needs access to the Enterprise Application in order to extract the metadata stored in its data dictionary. The actual method for extraction is Application dependent, but you will need to gain access to the system before an extraction of metadata can be performed.

### How SA/ERP communicates with databases

A database connection will be required for each database with which SA/ERP needs to communicate. This will normally be two connections for each 'Enterprise Application' to be reverse engineered:

- One for the SA/ERP Repository
- One for the 'source' Enterprise Application database

The only exception to this is where SA/ERP is being used with an SAP system and the connection to the SAP system is via ABAP. In this case, there is no need for a connection to the SAP database, as the extraction of metadata is performed by the ABAP function, not by a SQL connection.

SA/ERP uses Microsoft ActiveX Data Objects (ADO) to communicate with databases. If the database is using Sybase, DB2, or SQL Anywhere, an ODBC connection is also required for each database.

The ADO and ODBC technologies are parts of the Microsoft Data Access Components (MDAC). It is recommended that MDAC 2.8 or higher is installed on each PC where SA/ERP is to be installed. The table below shows the recommended ADO Providers and versions that are required for each of the RDBMS types SA/ERP supports.

Database	ADO Provider
Oracle	Oracle Provider for OLE DB (Version 8.1.7)
Microsoft SQL Server	Microsoft OLE DB Provider for SQL Server (Version 8.1)
IBM DB2	Microsoft OLE DB Provider for ODBC Drivers
Microsoft Access	Microsoft Jet 4.0 OLE DB Provider (Version 4.0)
Sybase SQL Anywhere	Microsoft OLE DB Provider for ODBC Drivers
Sybase	Microsoft OLE DB Provider for ODBC Drivers

**Important Note:** Before using SA/ERP with an IBM DB2 database, the ODBC connection for each DB2 database referenced by SA/ERP requires a patch to be applied to prevent a known problem with the ODBC driver where the application may crash. Please refer to Appendix D of this manual for details on applying this patch .

## Creating the SA/ERP database

The SA/ERP Repository is a set of database tables for storing the extracted SAP, PeopleSoft Enterprise, J.D. Edwards EnterpriseOne (formerly J.D. Edwards OneWorld), or Siebel metadata. It will be necessary to create a new database to store this information.

The exact sequence of steps for setting up the SA/ERP Repository is specific to the target RDBMS and will require some knowledge of that software's capabilities.

### To create the SA/ERP database

1. Decide on the target RDBMS in which the SA/ERP repository is to be established. This can be Oracle, Microsoft SQL Server (version 7 or later), IBM DB2 UDB, SQL Anywhere or Sybase.
2. Create a new database in the chosen RDBMS.

For Oracle: The database should be a minimum of 400MB. One large rollback segment of 50MB is needed. Other Rollback segments can use Oracle defaults. Use default Oracle extents.

For SQL Server and Sybase: Place the database and Transaction Log on different physical devices. Make the database 400MB and the Transaction Log 50MB.

For DB2: Create a new database for the SA/ERP Repository. The User space should be 400Mb and the Temp space 50Mb.

For SQL Anywhere: Create a new database for the SA/ERP Repository.

3. For Sybase, DB2 or SQLAnywhere, create an ODBC data source for connection to the newly-created SA/ERP database.

## Installing SA/ERP

The SA/ERP Setup program (SETUP.EXE) controls the installation process.

### To install SA/ERP

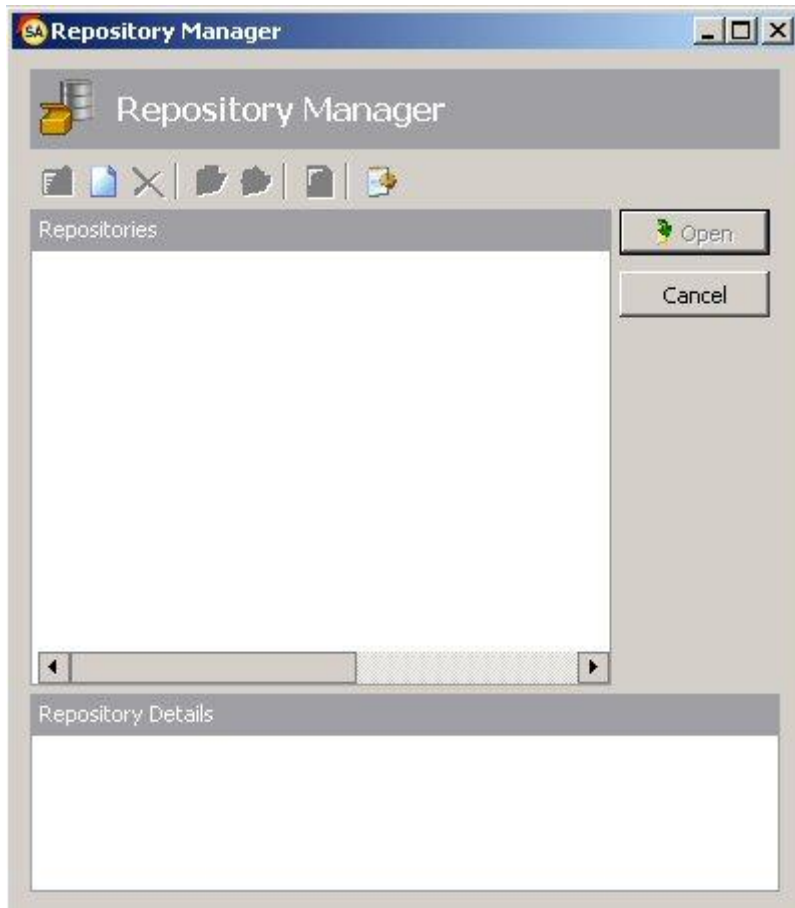
Locate the SA/ERP setup.exe file and run this program.

Follow the instructions of the SA/ERP Setup program through installation.

SA/ERP then displays the Repository Manager.


## Using the Repository Manager to configure SA/ERP

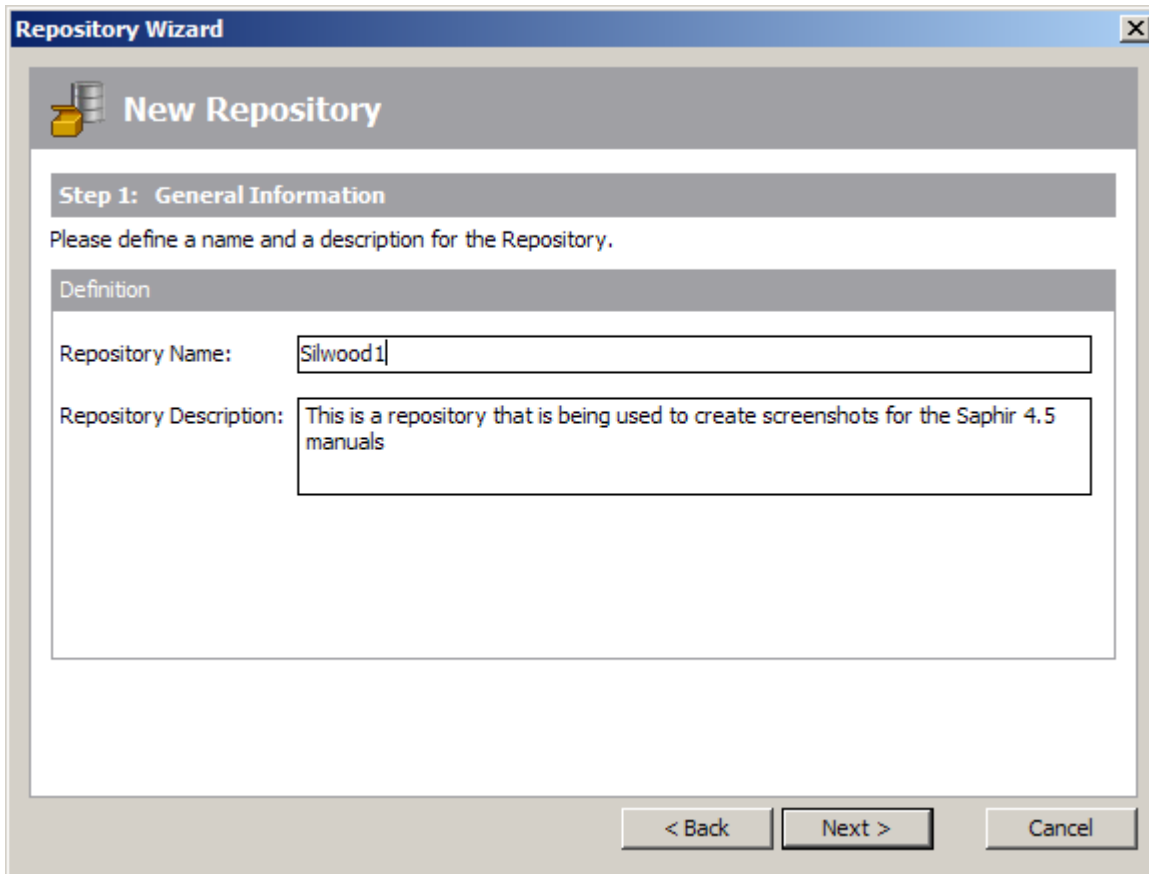
The Repository Manager uses a Wizard to guide you through the setup steps for configuring SA/ERP and connecting to your chosen Enterprise Application.



The Repository Manager

### To Configure a new SA/ERP repository

From the Repository Manager, click the  button to start the process of configuring a new repository. Click the 'Next' button on the first 'Repository Wizard' form to display the 'Step 1' form.



The screenshot shows a window titled "Repository Wizard" with a close button in the top right corner. The main heading is "New Repository" with a small icon of a yellow box and a silver cylinder. Below this is a section titled "Step 1: General Information" with a sub-heading "Definition". The text "Please define a name and a description for the Repository." is displayed. There are two input fields: "Repository Name:" with the text "Silwood1" and "Repository Description:" with the text "This is a repository that is being used to create screenshots for the Saphir 4.5 manuals". At the bottom, there are three buttons: "< Back", "Next >", and "Cancel".

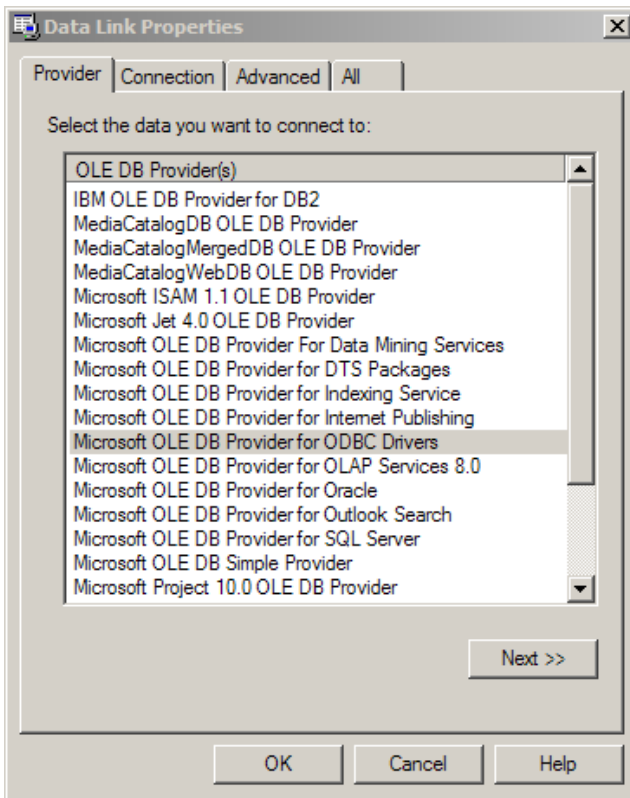
Repository Wizard – Step 1 – General Information

Specify a name in the Repository Name field, and optionally a Repository Description. Click the Next button to display the Step 2 form.

The screenshot shows the 'Repository Wizard' window, specifically the 'New Repository' section. The title bar reads 'Repository Wizard'. Below the title bar, there is a sub-header 'New Repository' with a small icon of a database cylinder. The main content area is titled 'Step 2: Database Configuration' and contains the instruction: 'Please define the database type and the connection information of the repository.' There are two main sections: 'Database Type' and 'Database Connection'. The 'Database Type' section has six radio buttons: 'Oracle', 'MS SQL' (which is selected), 'Sybase', 'SQL Anywhere', 'Access', and 'DB2'. The 'Database Connection' section includes a 'Connection Name' dropdown menu with 'New' and 'Edit' buttons to its right. Below this are three text input fields for 'Database Username', 'Database Password', and 'Command Timeout' (with a '[sec]' label). There is also a checkbox labeled 'Database is configured for CASE sensitivity'. At the bottom left of the main content area is a 'Test Connection' button. At the bottom of the window are three buttons: '< Back', 'Next >', and 'Cancel'.

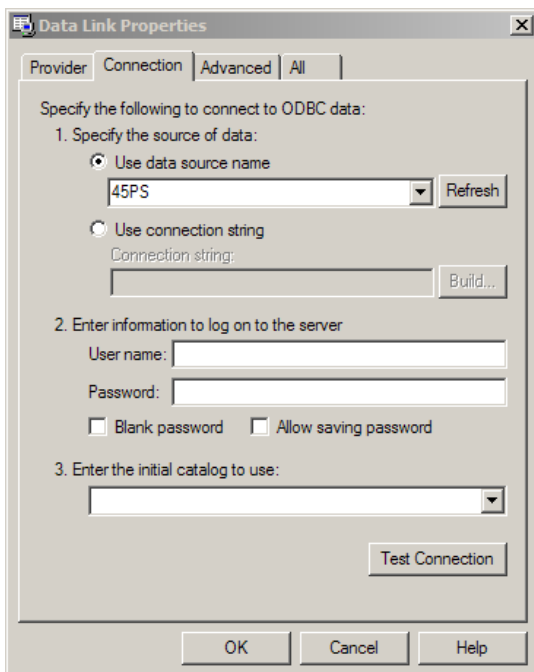
Repository Wizard – Step 2 – Database Configuration

1. Select the Radio Button that corresponds to the Database Type being used to host the SA/ERP Repository.
2. The Database Alias dropdown list shows all the existing ADO connections previously configured. If this is a new SA/ERP installation, it will be necessary to create a new connection. Click on the 'New' button to the right of the drop down to begin this process.
3. The 'Edit Connection Definition' form is now displayed. Enter an appropriate name for the connection in the 'Connection Definition name' field and click the 'OK' button. The ADO Data Link Properties form is then displayed.

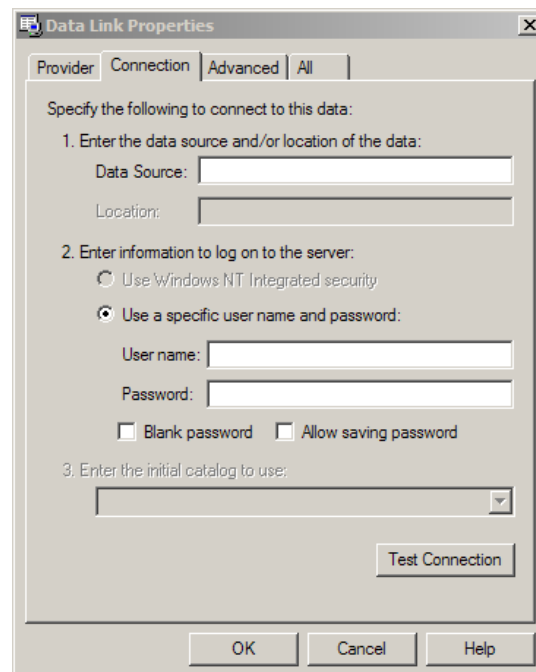


ADO Data Link Properties Form

4. If the database connection being created is Oracle, select 'Oracle Provider for OLE DB' from the list of Providers. If the database connection being created is SQL Server, select 'Microsoft OLE DB Provider for SQL Server'. For other database types select the 'Microsoft OLE DB Provider for ODBC Drivers' from the list of Providers. Now click the 'Next' button.
5. The Data Link Properties Connection tab is now displayed. The available fields on this tab will be dependant on the chosen Provider. The layouts for ODBC, Oracle and SQL Server are shown below.

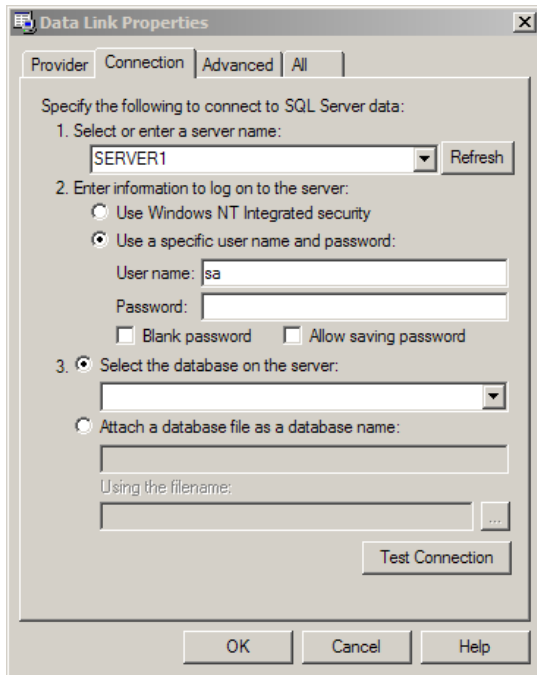


Data Link Properties 'Connection' tab for ODBC



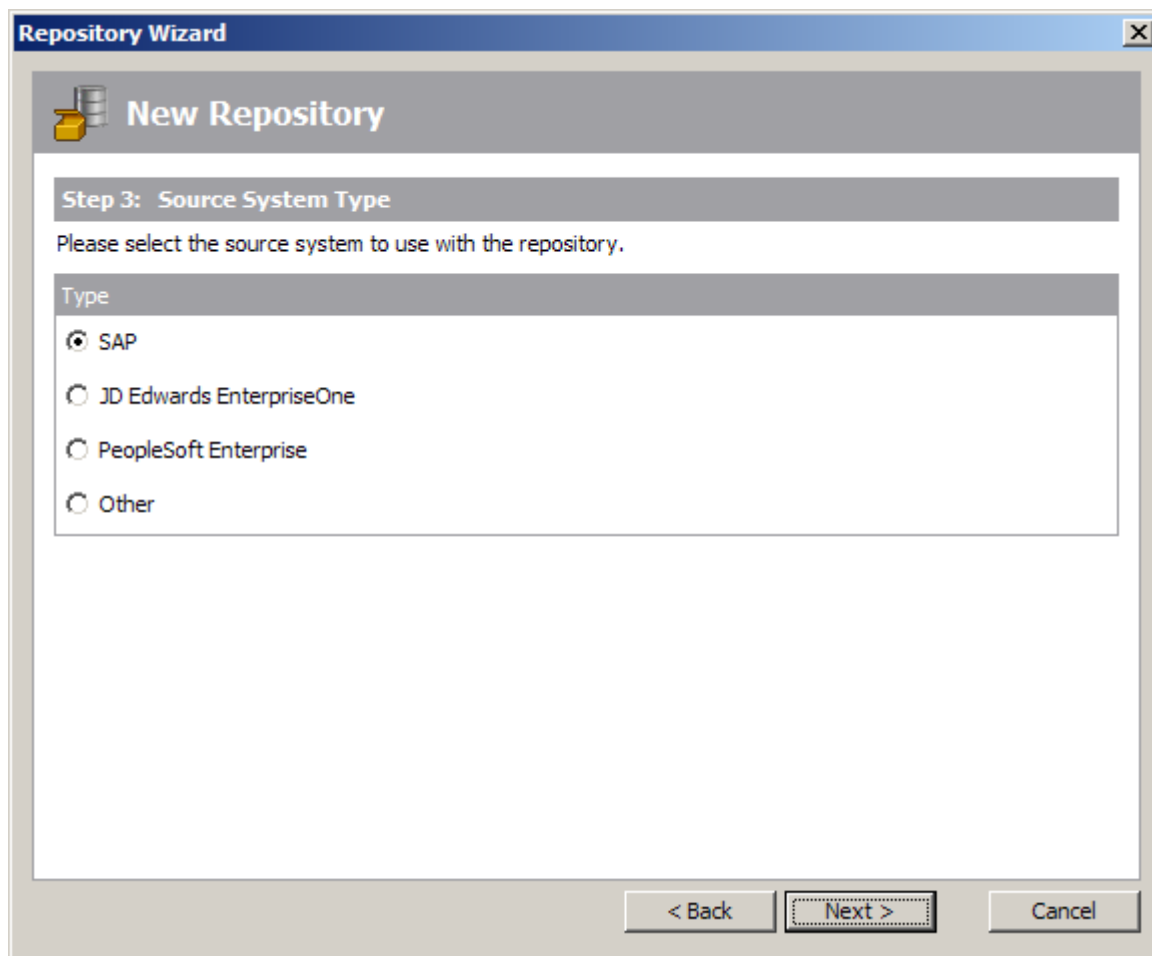
...for Oracle...





...and for SQL Server

6. For ODBC databases, from the 'Use data source name' drop down list, select the previously created ODBC connection (see 'Creating the SA/ERP database' earlier in this chapter) for the SA/ERP database. For an Oracle database, in the 'Data Source' field, enter the connection string for connecting to the Oracle database. This will normally be the string used in the TNSNAMES file for connection to the database. For a SQL Server database, in the 'Select or enter a server name' field, enter or select the name of the Server where the database is located.
7. Enter a User name and Password. The User Name is a valid database User-id with owner access rights to the SA/ERP Repository. Alternatively, leave these fields blank and enter the User Name and Password in the Repository Wizard form.
8. If a User name and Password were entered in the previous step, test the connection to the database by clicking the 'Test Connection' button.. If the connection is successful, click 'OK' to return to the Repository Wizard.
9. If not previously entered in the ADO configuration, enter the owner username and password for the database
10. For Microsoft SQL Server and DB2, a 'Command Timeout' property may be specified. This indicates the length of time to allow for a given query to complete. The default is 210 seconds. It will not normally be necessary to enter a value for this field unless 'timeout' problems are encountered.
11. If the Database is configured to allow CASE-sensitive SQL statements, then check the 'Database is configured...' check box.
12. Click the 'Test Connection' button to ensure that a connection can be established between SA/ERP and the specified database.
13. Click the 'Next' button to display the Repository Wizard Step 3 form.



Repository Wizard – Step 3 – Source System Type

Step 3 is about specifying the type of Enterprise Application that SA/ERP will connect to. Check the radio button that corresponds to the ‘source’ system that this Repository is to be used with.

Note: The process of specifying a source system is specific to each Repository. A number of ERP instances (e.g. Production, Development) and/or Systems (e.g. SAP, PeopleSoft) may be managed by the same SA/ERP installation. The ability to manage multiple ERPs is controlled by the type of SA/ERP license your organisation has purchased.


The next steps in the Repository Wizard are about specifying the location and connection method for the ‘source’ Enterprise Application.. These steps are specific to each Enterprise Application. You can either carry on with the Wizard steps now, or click through each screen and return to specify the specific connection parameters later.

To connect to an SAP system, see ‘Configuring SA/ERP to connect to an SAP system’ below


For a PeopleSoft Enterprise system, see ‘Connecting to PeopleSoft Enterprise’ below

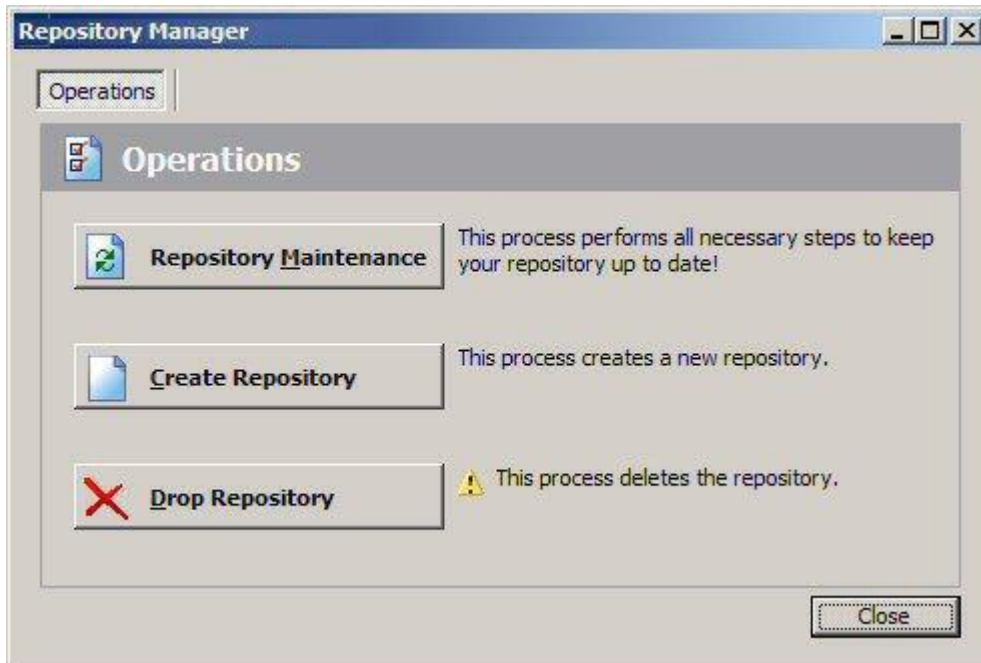
For a J.D.Edwards EnterpriseOne system, see ‘Connecting to J.D.Edwards EnterpriseOne’ below.

Once the Repository Wizard Steps have been completed, SA/ERP performs a check on the database to see if the Repository tables exists. If not (or if the Repository was created with an earlier SA/ERP version), SA/ERP displays a form asking you to confirm that the Repository Maintenance function should be started. See the next section for details of the repository maintenance process.

Note that you can return to the Repository Wizard forms at any time to amend the entered settings by clicking the  button on the Repository manager toolbar.

## Repository Maintenance

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. In addition, the Repository Maintenance form can be accessed by clicking the  button on the Repository manager toolbar.



Repository Maintenance

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.

## Configuring SA/ERP to connect to an SAP system

One of the most important steps in installing SA/ERP for use with SAP is to decide which of two methods to use for extracting the metadata. The choices are:

- Extract via Direct Database Connection to SAP
- Extract via Remote Function Calls (RFC)

Extracting via Direct Database Connection to SAP uses the appropriate RDBMS connectivity software to attach to the SAP Database to extract metadata via SQL calls from the SAP Data Dictionary Tables.

- **Advantages:** The main advantage of this approach is speed. By accessing the database tables directly, the extraction time for pulling metadata out of SAP is minimized.
- **Disadvantages:** In some SAP installations it may be difficult to get direct access to the underlying SAP database. The SA/ERP user will need to be granted SAP *database* access rights (*not* SAP user access rights) to the relevant Data Dictionary tables, and will need to establish a connection from the PC on which SA/ERP resides to the SAP Database itself.

Extracting via RFCs uses a set of calls to an ABAP function, supplied with SA/ERP, to extract metadata into flat file format, via the SAP Application Layer. SA/ERP then takes the flat files and imports the metadata into the SA/ERP Repository.

- **Advantages:** This approach will be easier to implement in sites where there are concerns about direct access to the SAP database.
- **Disadvantages:** Extracting via RFCs and then importing the resulting text files into the SA/ERP Repository is a slower method of extracting the metadata than a direct connection to the database. Typically, expect extraction via RFCs to take 50% longer than extraction via a direct connection to the database.

### Choosing the right SAP extraction method

If there are likely to be problems with gaining direct access to the SAP Database, choose the RFC method. See 'Connecting to SAP Using the RFC Connection Method' below for details.

If speed of extraction is an issue, and there are no concerns about direct access to the SAP database, choose the Direct Connection method. See 'Connecting to SAP Using the Direct Connection Method' below for details.

The choice of Extraction Method influences the steps required to successfully implement SA/ERP. These are described in the following sections.

## Connecting to SAP using the Direct Connection Method

If you have chosen to connect to SAP using the 'Direct' connection method, then it will be necessary to configure a connection to the SAP database where the required metadata is stored. As with the connection to the SA/ERP database, this is achieved using Microsoft ADO (ActiveX Data Objects). If the SAP database is not an Oracle or SQL Server database, it will also be necessary to use the ODBC Data Source Administrator to configure an ODBC connection to the database.

## Connecting to SAP using the RFC Connection Method

If you have chosen to connect to SAP using the RFC connection method, then it will be necessary to register an ABAP Function on the SAP Application Server. This ABAP function is supplied as source code with the SA/ERP software and can be found in the SA/ERP installation folder as Saprfc\z\_saphir\_rfcs\_ddexpv3.txt.

Full details of how to install and activate the ABAP function re to be found in Appendix A of this manual.

The steps described in the Appendices can be summarized as:

- Create a Development Class
- Create a Function Group
- Register the ABAP
- Test the ABAP

### Required Access Rights for the SAP User used by SA/ERP

An SAP Username and Password will be required to enable SA/ERP to invoke the ABAP function.

This user must be of User Type 'Dialog' or 'Service' and have a security profile which allows RFC access to the SA/ERP Function Group created above.

Once the ABAP has been installed, you may proceed to the next stage. Turn to 'Entering the Extraction Method choice into SA/ERP' below.

## Entering the extraction method choice into SA/ERP

Once you have decided the extraction method and configured the appropriate connection to the SAP system, navigate to Step 4 of the Repository Wizard. This is where you record the Database type being used by SAP, and the connection method.

**Step 4: Database for SAP**

Please define the type of the source database.

**Database Type**

Oracle  DB2

MS SQL  Informix

**Database Connection**

Command Timeout:  [sec]

**Connection Type**

Direct DB Connect  SAP RFC Connect

PC-Like Byte Order / Application Server on PC and not on a Workstation

Repository Wizard – Step 4 – specifying the SAP database type and connection method

1. Select the radio button which corresponds to the database type on which the SAP system has been installed
2. For Microsoft SQL Server and DB2, a ‘Command Timeout’ property may be specified. This indicates the length of time to allow for a given query to complete. The default is 210 seconds. It will not normally be necessary to enter a value for this field unless ‘timeout’ problems are encountered.
3. Select the radio button for the Connection Type
4. If the SAP Application Server is installed on a PC rather than a non-windows workstation, check the ‘PC-Like Byte Order...’ check box.

Click the ‘Next’ button.

If you have chosen the ‘Direct DB Connect’ method for extracting metadata from SAP, the next form will be Step 5 – SAP Database Connection (see ‘Entering the SAP Database Connection settings’ below).

If you have chosen ‘SAP RFC Connect’, the next form will be Step 5 – SAP RFC Connection (see ‘Entering the SAP RFC Connection settings’ below).

## Entering the SAP database connection settings

**Step 5: SAP Database Connection**

Please define and test the database connection of the source system.

Database Connection

Database Alias:  New Edit

Database Username:

Database Password:

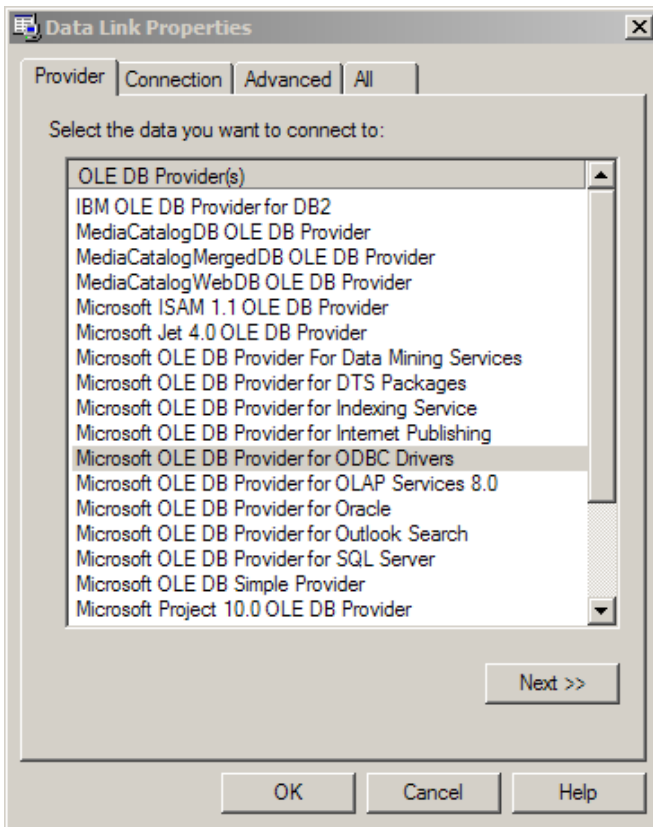
Table Owner:  Grant SQL

Test Connection

Repository Wizard – Step 5 – SAP Database Connection

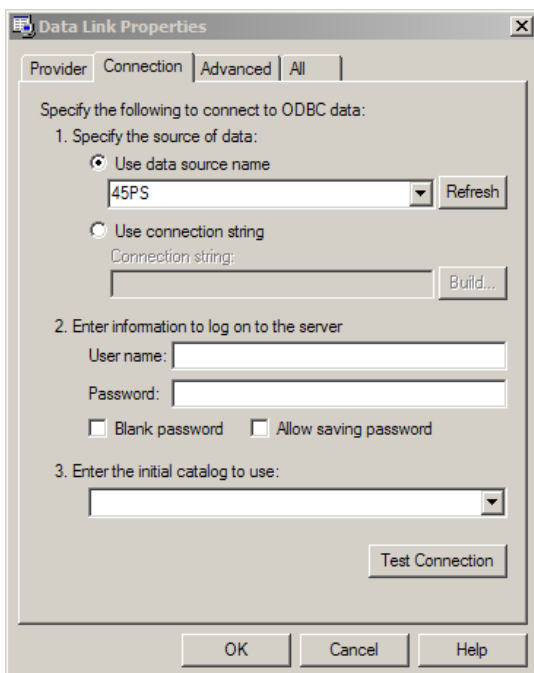
Step 5 of the Repository Wizard records the information required for SA/ERP to connect directly to the SAP database.

1. The Database Connection dropdown list shows all the existing ADO connections previously configured. If this is a new SA/ERP installation, it will be necessary to create a new connection to the SAP database. Click on the 'New' button to the right of the drop down to begin this process.
2. The 'Edit Connection Definition' form is now displayed. Enter an appropriate name for the connection in the 'Connection Definition name' field and click the 'OK' button. The ADO Data Link Properties form is then displayed.

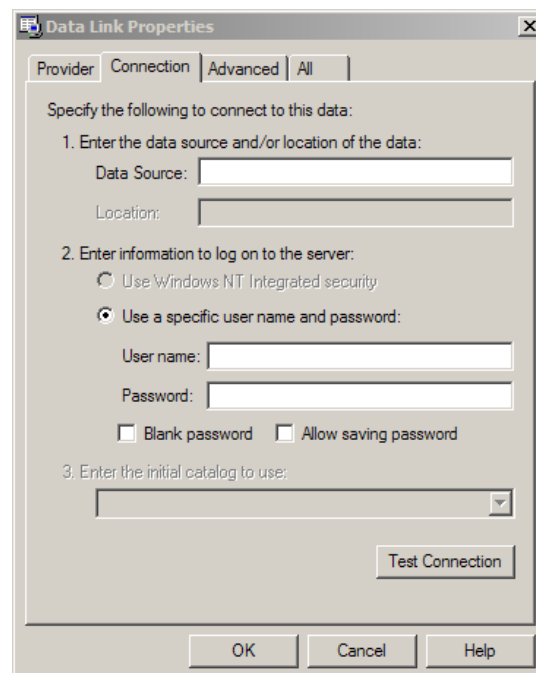


ADO Data Link Properties Form

3. If the database connection being created is Oracle, select 'Oracle Provider for OLE DB' from the list of Providers. If the database connection being created is SQL Server, select 'Microsoft OLE DB Provider for SQL Server'. For other database types select the 'Microsoft OLE DB Provider for ODBC Drivers' from the list of Providers. Now click the 'Next' button.
4. The Data Link Properties Connection tab is now displayed. The available fields on this tab will be dependant on the chosen Provider. The layouts for ODBC, Oracle and SQL Server are shown below.

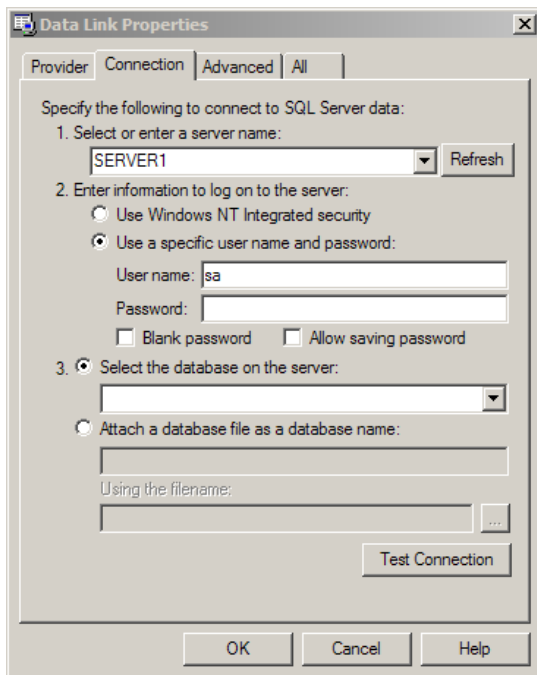


Data Link Properties 'Connection' tab for ODBC



...for Oracle...





...and for SQL Server

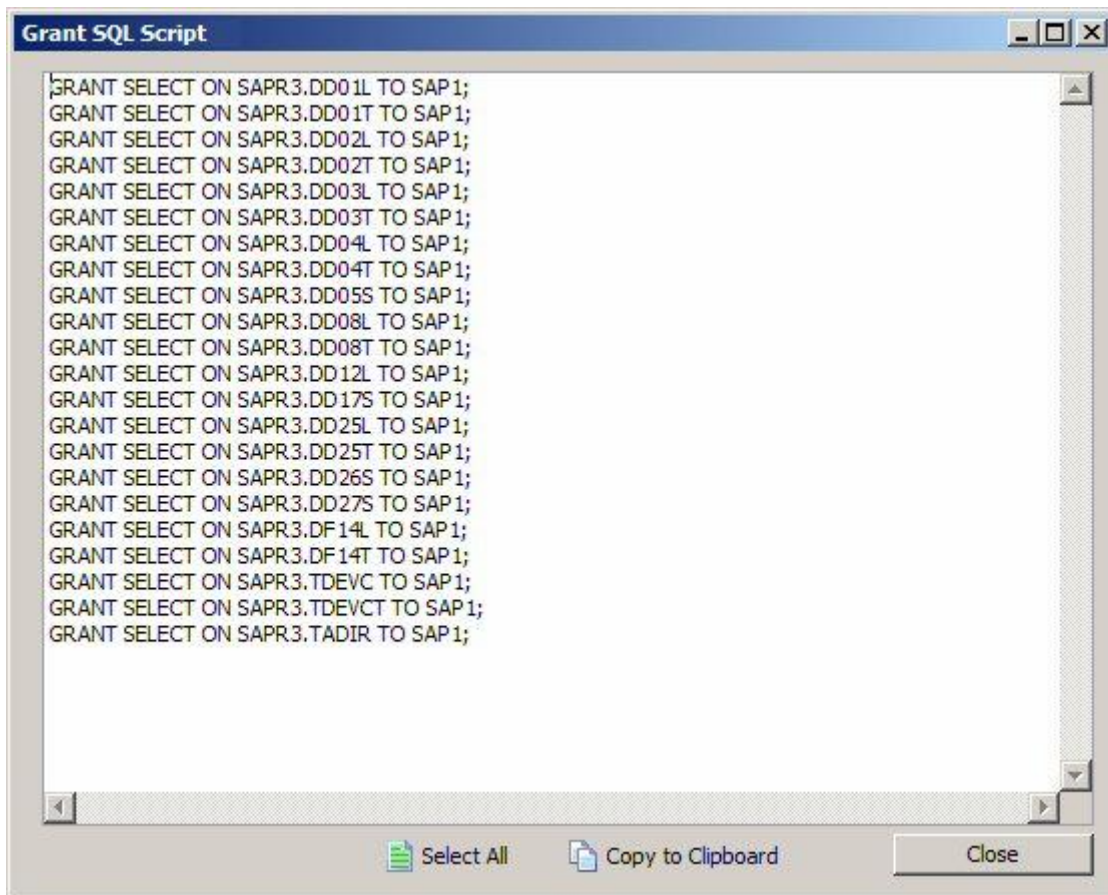
5. For ODBC databases, from the 'Use data source name' drop down list, select the previously created ODBC connection for the SAP database. For an Oracle database, in the 'Data Source' field, enter the connection string for connecting to the Oracle database. This will normally be the string used in the TNSNAMES file for connection to the database. For a SQL Server database, in the 'Select or enter a server name' field, enter or select the name of the Server where the database is located.
6. Enter a User name and Password. The User Name is a valid database User-id with 'select' access rights to the SAP database. Alternatively, leave these fields blank and enter the User Name and Password in the Repository Wizard form. (Note: this is a database Username and Password – not a SAP Application User Name and Password).
7. If a User name and Password were entered in the previous step, test the connection to the database by clicking the 'Test Connection' button.. If the connection is successful, click 'OK' to return to the Repository Wizard.
8. If not previously entered in the ADO configuration, enter a username and password for the database
9. If necessary, enter the SAP Table Owner (this is normally 'SAPR3').

Click the 'Test Connection' button to have SA/ERP check that the database can be accessed using the supplied information.

The 'Grant SQL' button will generate the appropriate SQL 'Grant' statements for each of the SAP tables that SA/ERP need to access in the SAP database. You can use this feature to help your SAP DBA set up a database user for use in SA/ERP.

Click the 'Save' button to save all the settings entered during the Repository Wizard session.

Now turn to 'Opening a SA/ERP Repository' below.



The Grant SQL form showing the GRANT statements for each SAP table accessed by SA/ERP

## Entering the SAP RFC connection settings

**Step 5: SAP RFC Connection**

Please define and test the RFC Connection of the source system.

**RFC Connection**

Application Server:       SAP Client No.:

System Number:       SAP Username:

SAPRFC.ini DEST:  (optional)      SAP Password:

SAP GUI Version:       SAP Language:

RFC Function Name:

RFC Extract Path:

Repository Wizard – Step 5 – SAP RFC Connection

Step 5 of the Repository Wizard records the information required for SA/ERP to connect to the SAP system using SAP Remote Function Calls (RFCs).

1. Enter the Application Server name of the desired SAP system, the SAP Client Number, the System Number and the Username and Password.
2. Enter the optional SAPRFC.ini Destination string if the SAPRFC.ini file is being used for connection to SAP systems (see Appendix C for more details of the SAPRFC.ini usage).
3. Use the SAP GUI Version drop down to choose the SAP GUI version of 4.x or 6.x
4. Select the desired SAP extraction language. If you do not see the language you require, you can modify the range of available language codes by modifying the saphir.ini file. (see Appendix B for details of the saphir.ini file)
5. Specify the name of the ABAP Function to be invoked by the RFC calls (see Appendix A for details of the ABAP function )
6. Enter a path for the location of the RFC text files. This is only required if the extraction is to be performed in two phases, as described in ‘Extracting Metadata from SAP’ in Chapter 3 of this manual.

Click the ‘Test Connection’ button to have SA/ERP check that the SAP system can be accessed using the supplied information.

Click the ‘Save’ button to save all the settings entered during the Repository Wizard session. Now turn to ‘Opening a SA/ERP Repository’ below.

## Connecting to PeopleSoft Enterprise

If you have chosen to connect to a PeopleSoft system, then it will be necessary to configure a connection to the PeopleSoft database where the required metadata is stored.

As with the connection to the SA/ERP database, this is achieved using Microsoft ADO (ActiveX Data Objects). If the PeopleSoft database is not an Oracle or a SQL Server database, it will also be necessary to use the ODBC Data Source Administrator to configure an ODBC connection to the database.

## Choosing the PeopleSoft database type

Now navigate to Step 4 of the Repository Wizard. This is where you record the Database type being used by PeopleSoft.

Step 4: Database for PeopleSoft Enterprise

Please define the type of the source database.

Database Type

Oracle  DB2  MS SQL

Database Connection

Command Timeout:  [sec]

Repository Wizard – Step 4 – specifying the PeopleSoft database type

Select the radio button which corresponds to the database type on which the PeopleSoft system has been installed.

For Microsoft SQL Server and DB2, a 'Command Timeout' property may be specified. This indicates the length of time to allow for a given query to complete. The default is 210 seconds. It will not normally be necessary to enter a value for this field unless 'timeout' problems are encountered.

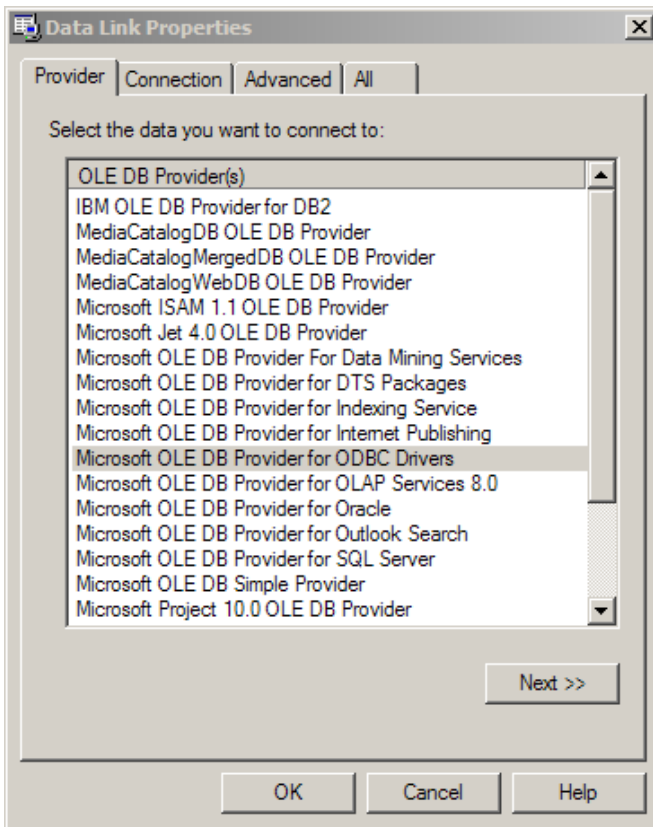
Click the 'Next' button.

## Entering the PeopleSoft database connection settings

Step 5 of the Repository Wizard records the information required for SA/ERP to connect to the PeopleSoft database.

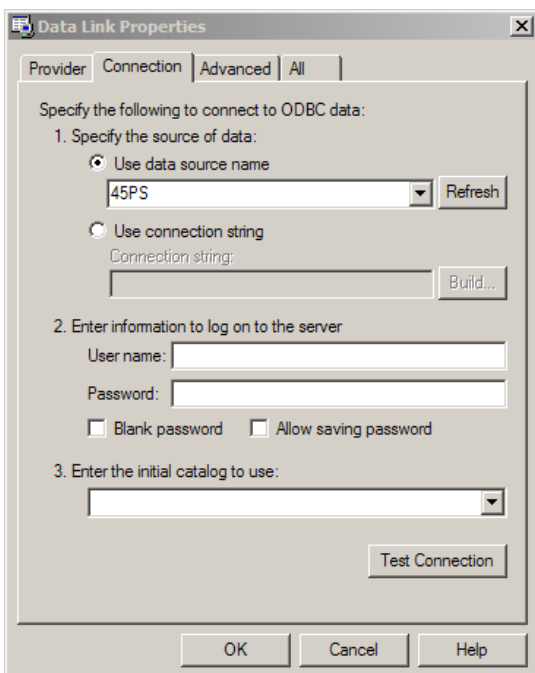
Repository Wizard – Step 5 – PeopleSoft Database Connection

1. The Database Alias dropdown list shows all the existing ADO connections previously configured. If this is a new SA/ERP installation, it will be necessary to create a new connection to the PeopleSoft database. Click on the 'New' button to the right of the drop down to begin this process.
2. The 'Edit Connection Definition' form is now displayed. Enter an appropriate name for the connection in the 'Connection Definition name' field and click the 'OK' button. The ADO Data Link Properties form is then displayed.

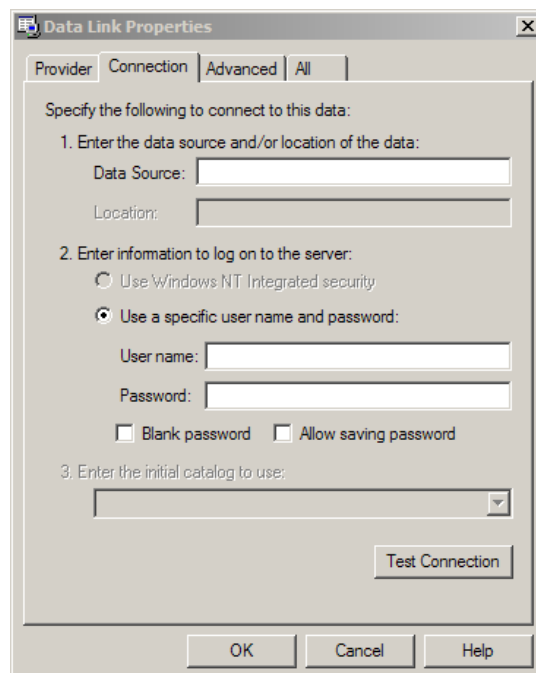


ADO Data Link Properties Form

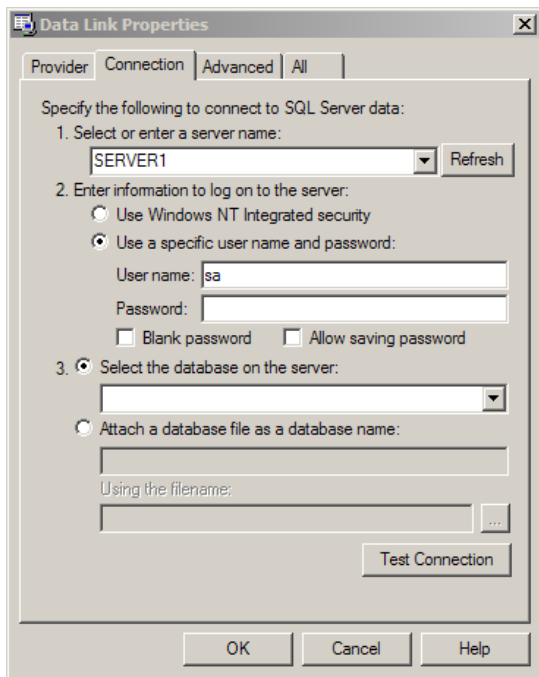
3. If the database connection being created is Oracle, select 'Oracle Provider for OLE DB' from the list of Providers. If the database connection being created is SQL Server, select 'Microsoft OLE DB Provider for SQL Server'. For other database types select the 'Microsoft OLE DB Provider for ODBC Drivers' from the list of Providers. Now click the 'Next' button.
4. The Data Link Properties Connection tab is now displayed. The available fields on this tab will be dependant on the chosen Provider. The layouts for ODBC, Oracle and SQL Server are shown below.



Data Link Properties 'Connection' tab for ODBC



...for Oracle...



...and for SQL Server

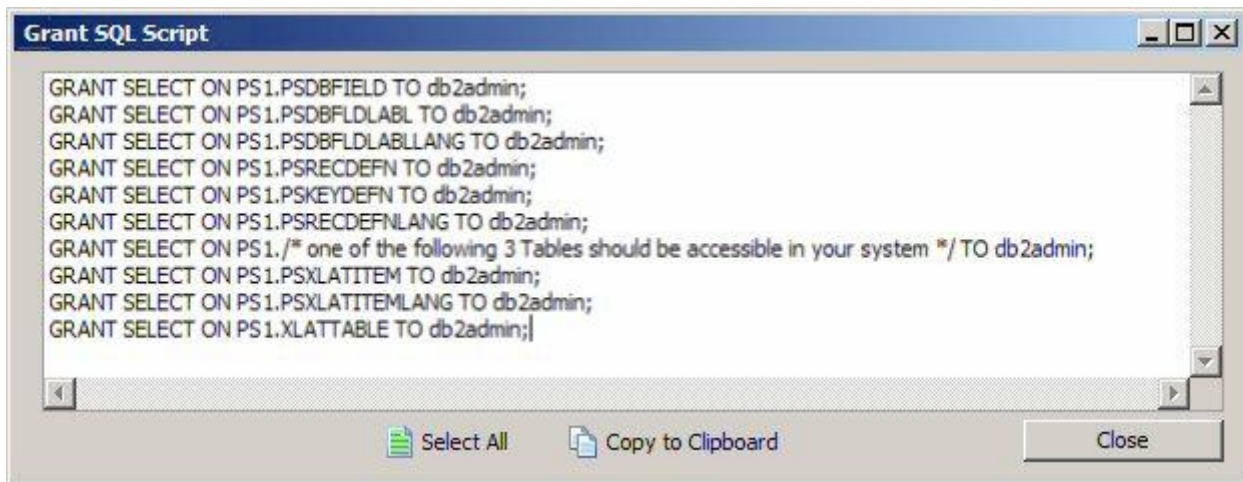
5. For ODBC databases, from the 'Use data source name' drop down list, select the previously created ODBC connection for the PeopleSoft database. For an Oracle database, in the 'Data Source' field, enter the connection string for connecting to the Oracle database. This will normally be the string used in the TNSNAMES file for connection to the database. For a SQL Server database, in the 'Select or enter a server name' field, enter or select the name of the Server where the database is located.
6. Enter a User name and Password. The User Name is a valid database User-id with 'select' access rights to the PeopleSoft database. Alternatively, leave these fields blank and enter the User Name and Password in the Repository Wizard form. (Note: this is a database Username and Password – not a PeopleSoft Application User Name and Password).
7. If a User name and Password were entered in the previous step, test the connection to the database by clicking the 'Test Connection' button.. If the connection is successful, click 'OK' to return to the Repository Wizard. (Note: this is a database Username and Password – not a PeopleSoft Application Username and Password).
8. If not previously entered in the ADO configuration, enter a username and password for the database
9. If necessary, enter the PeopleSoft Table Owner

Click the 'Test Connection' button to have SA/ERP check that the database can be accessed using the supplied information.

The 'Grant SQL' button will generate the appropriate SQL 'Grant' statements for each of the PeopleSoft tables that SA/ERP need to access in the PeopleSoft database. You can use this feature to help your PeopleSoft DBA set up a database User for you.

Click the 'Save' button to save all the settings entered during the Repository Wizard session.

Now turn to 'Opening a SA/ERP Repository' below.



The Grant SQL form showing the GRANT statements for each PeopleSoft table accessed by SA/ERP



## Connecting to J.D.Edwards EnterpriseOne

If you have chosen to connect to a J.D.Edwards EnterpriseOne system, then it will be necessary to configure a connection to the EnterpriseOne database where the required metadata is stored. SA/ERP extracts the metadata from a small set of tables in this database and a group of XML files that are generated by a process on the EnterpriseOne application. You will need to generate the XML files before attempting the extraction of metadata from the EnterpriseOne system.

As with the connection to the SA/ERP database, the connection to the EnterpriseOne database is achieved using Microsoft ADO (ActiveX Data Objects). If the database is not an Oracle or a SQL Server database, it will also be necessary to use the ODBC Data Source Administrator to configure an ODBC connection to the database. The tables that SA/ERP accesses are EnterpriseOne Data Dictionary tables (in particular, F9202, F9210 and F00165).

### To produce the XML Files from the EnterpriseOne system

1. From the J.D.Edwards EnterpriseOne Explorer, select Foundation and then Report Writer.
2. From the Menu, select Batch Versions.
3. Key R91400A into the Batch Application field and press Find. There is only one version, select it by double clicking.

The XML files produced should be:

- SysCodes.xml
- Tables.xml
- UseCodes.xml
- Views.xml

## Choosing the EnterpriseOne database type

Now navigate to Step 4 of the Repository Wizard. This is where you record the Database type being used by the EnterpriseOne system.

The screenshot shows a wizard window titled "Step 4: Database for JD Edwards EnterpriseOne". Below the title bar, it says "Please define the type of the source database." There are two sections: "Database Type" and "Database Connection".

**Database Type**

Oracle  DB2

MS SQL

**Database Connection**

Command Timeout:  [sec]

Repository Wizard – Step 4 – specifying the EnterpriseOne database type

Select the radio button which corresponds to the database type on which the EnterpriseOne system has been installed

For Microsoft SQL Server and DB2, a 'Command Timeout' property may be specified. This indicates the length of time to allow for a given query to complete. The default is 210 seconds. It will not normally be necessary to enter a value for this field unless 'timeout' problems are encountered.

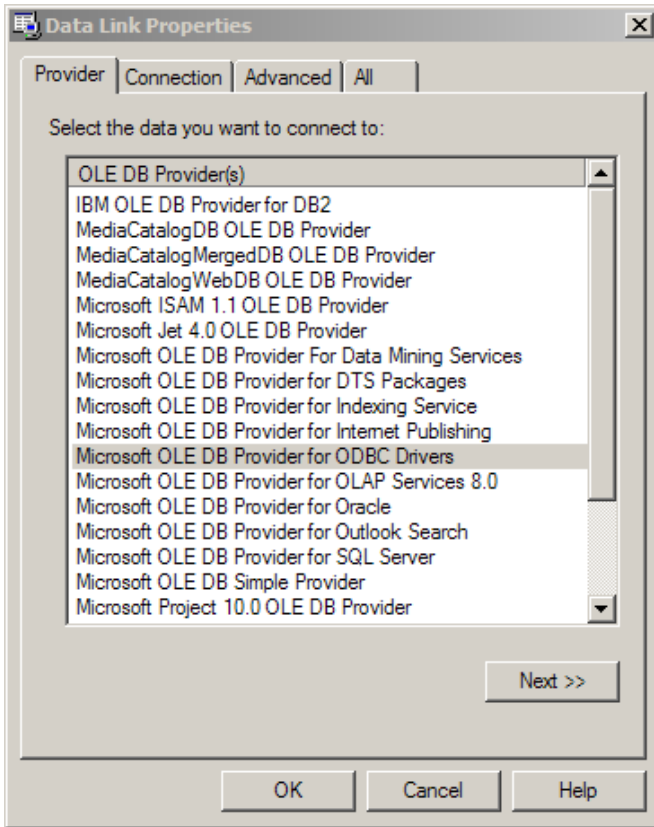
Click the 'Next' button.

## Entering the EnterpriseOne database connection settings

Step 5 of the Repository Wizard records the information required for SA/ERP to connect to the EnterpriseOne database.

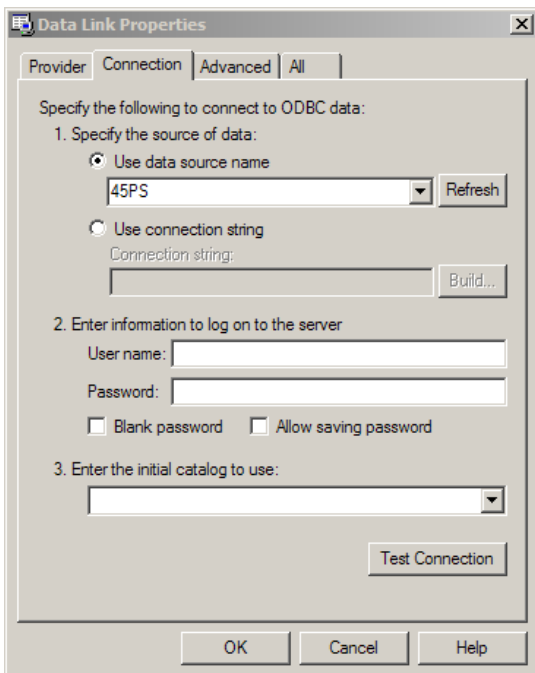
Repository Wizard – Step 5 – EnterpriseOne Database Connection

1. The Database Alias dropdown list shows all the existing ADO connections previously configured. If this is a new SA/ERP installation, it will be necessary to create a new connection to the EnterpriseOne database. Click on the ‘New’ button to the right of the drop down to begin this process.
2. The ‘Edit Connection Definition’ form is now displayed. Enter an appropriate name for the connection in the ‘Connection Definition name’ field and click the ‘OK’ button. The ADO Data Link Properties form is then displayed.

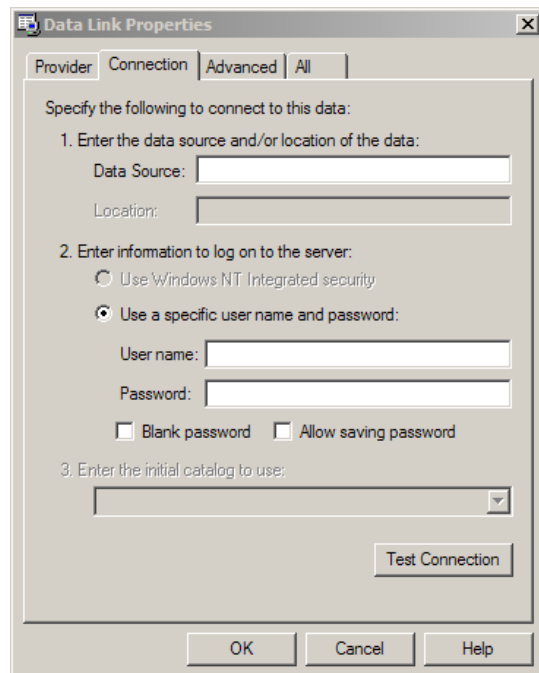


ADO Data Link Properties Form

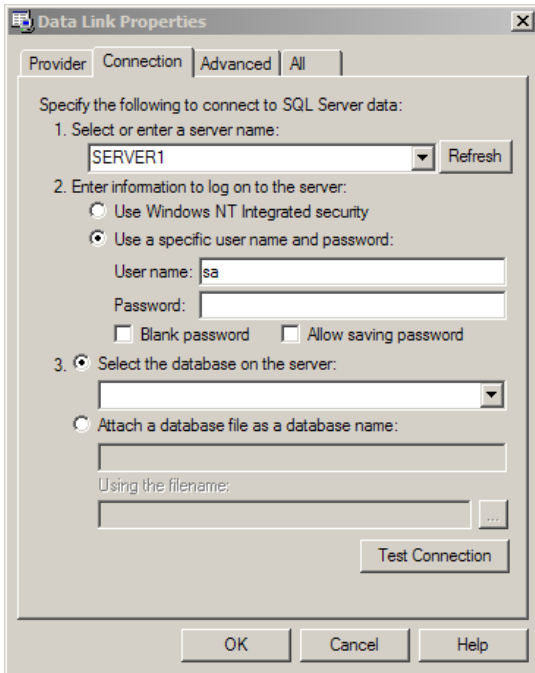
3. If the database connection being created is Oracle, select 'Oracle Provider for OLE DB' from the list of Providers. If the database connection being created is SQL Server, select 'Microsoft OLE DB Provider for SQL Server'. For other database types select the 'Microsoft OLE DB Provider for ODBC Drivers' from the list of Providers. Now click the 'Next' button.
4. The Data Link Properties Connection tab is now displayed. The available fields on this tab will be dependant on the chosen Provider. The layouts for ODBC, Oracle and SQL Server are shown below.



Data Link Properties 'Connection' tab for ODBC



...for Oracle...



...and for SQL Server

5. For ODBC databases, from the 'Use data source name' drop down list, select the previously created ODBC connection. For an Oracle database, in the 'Data Source' field, enter the connection string for connecting to the Oracle database. This will normally be the string used in the TNSNAMES file for connection to the database. For a SQL Server database, in the 'Select or enter a server name' field, enter or select the name of the Server where the database is located.
6. Enter a User name and Password. The User Name is a valid database User-id with 'select' access rights to the EnterpriseOne database. Alternatively, leave these fields blank and enter the User Name and Password in the Repository Wizard form. (Note: this is a database Username and Password – not an EnterpriseOne Application User Name and Password).
7. If a User name and Password were entered in the previous step, test the connection to the database by clicking the 'Test Connection' button.. If the connection is successful, click 'OK' to return to the Repository Wizard.
8. If not previously entered in the ADO configuration, enter a username and password for the database
9. If necessary, enter the EnterpriseOne Table Owner.
10. Enter the directory where the 4 XML files produced from the EnterpriseOne batch process described in Connecting to J.D.Edwards EnterpriseOne' above are located.

Click the 'Test Connection' button to have SA/ERP check that the database can be accessed using the supplied information.


Click the 'Save' button to save all the settings entered during the Repository Wizard session.

Now turn to 'Opening a SA/ERP Repository' below.

## Opening a SA/ERP Repository

The Repository Manager is not only the means by which SA/ERP Repositories are created and maintained, it is also the mechanism for opening and switching between repositories.

### To Open an existing Repository

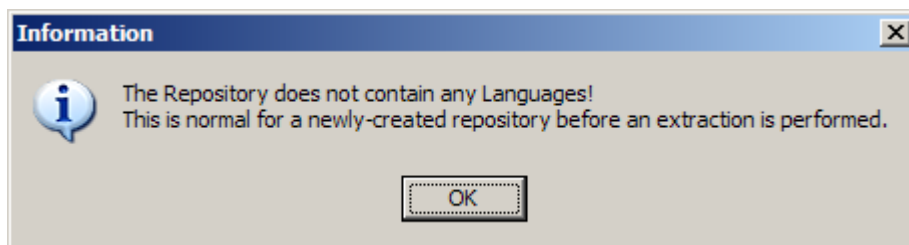
When SA/ERP is started, the Repository Manager is automatically displayed. If SA/ERP is already started and you wish to switch to a different repository, click the  button on the SA/ERP toolbar.



Selecting a Repository in the Repository Manager

To open a repository, select the required entry from the list and click the ‘Open’ button.

For an empty repository (where no extraction has yet been performed), the following message will be displayed.



This indicates that there are no data definitions stored in the repository as yet. The population of the repository occurs when you perform an extraction from your chosen Enterprise Application. This is described in the next chapter.

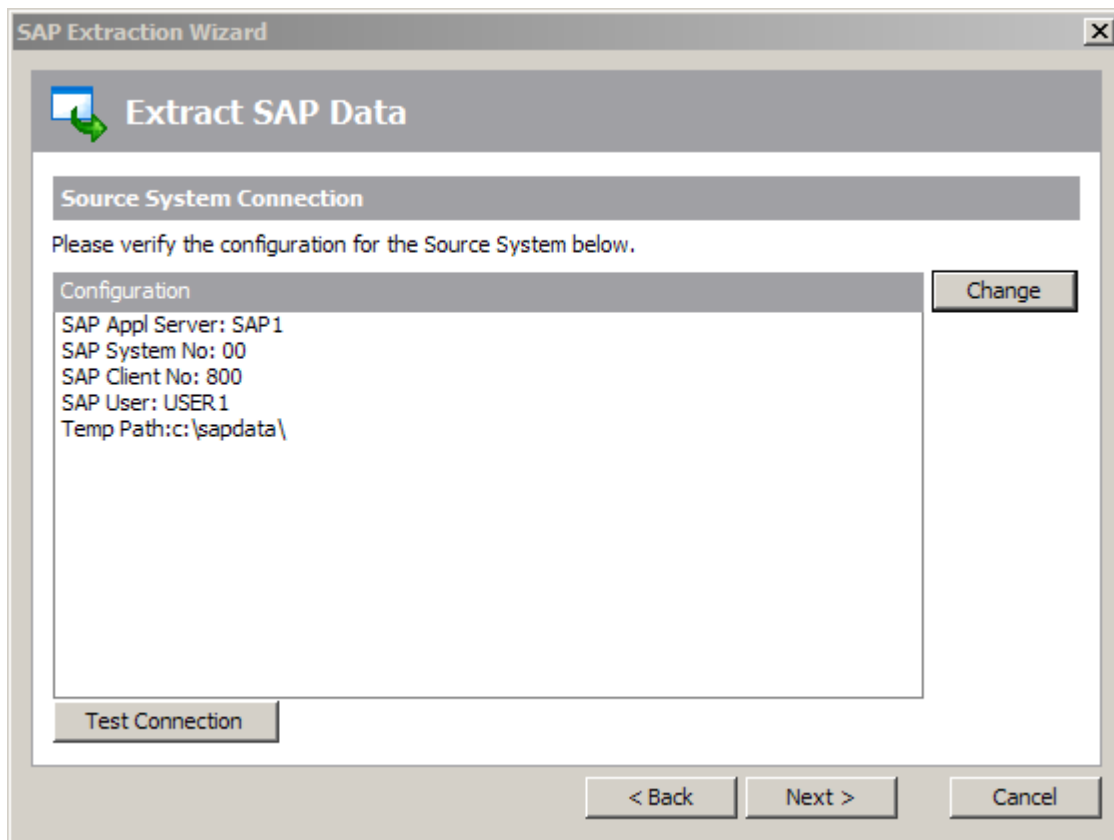
## Extracting Metadata

*How to extract metadata from your chosen Enterprise Application*

Having successfully installed SA/ERP, the next step is to extract metadata from the Enterprise Application. The following sections describe how to achieve this for SAP, PeopleSoft Enterprise or J.D.Edwards EnterpriseOne.

### Extracting metadata from SAP

Start the extraction process by selecting the 'ERP Extract' option from the SA/ERP File menu. This will start the SAP Extraction Wizard. Click the 'Next' button on the first 'Extraction Wizard' form to display the 'Source System Connection' form.



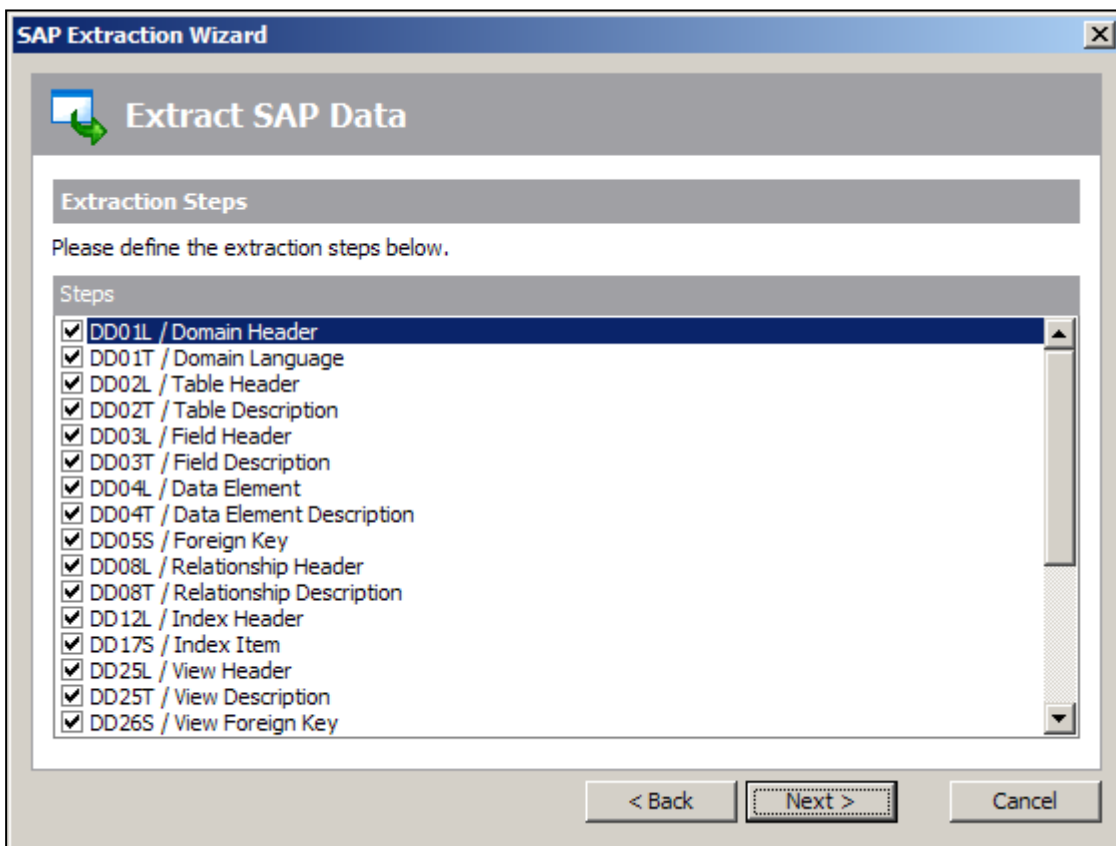
The screenshot shows the 'SAP Extraction Wizard' dialog box. The title bar reads 'SAP Extraction Wizard'. The main window has a header 'Extract SAP Data' with a green arrow icon. Below this is a section titled 'Source System Connection' with the instruction 'Please verify the configuration for the Source System below.' A list box contains the following configuration details: 'SAP Appl Server: SAP 1', 'SAP System No: 00', 'SAP Client No: 800', 'SAP User: USER1', and 'Temp Path:c:\sapdata\'. To the right of the list box is a 'Change' button. At the bottom left of the list box area is a 'Test Connection' button. At the bottom of the dialog box are three buttons: '< Back', 'Next >', and 'Cancel'.

SAP Extraction Wizard – Source System Connection

This form shows a summary of the connection parameters, previously supplied when completing the Repository Wizard. The connection parameters will vary in format depending on the connection method chosen (Direct DB Connect or SAP RFC Connect). You can:

- Click the 'Change' button to further amend the connection parameters
- Click the 'Test Connection' button to verify the connection through to the Application.

Now click the 'Next' button to proceed to the next stage.

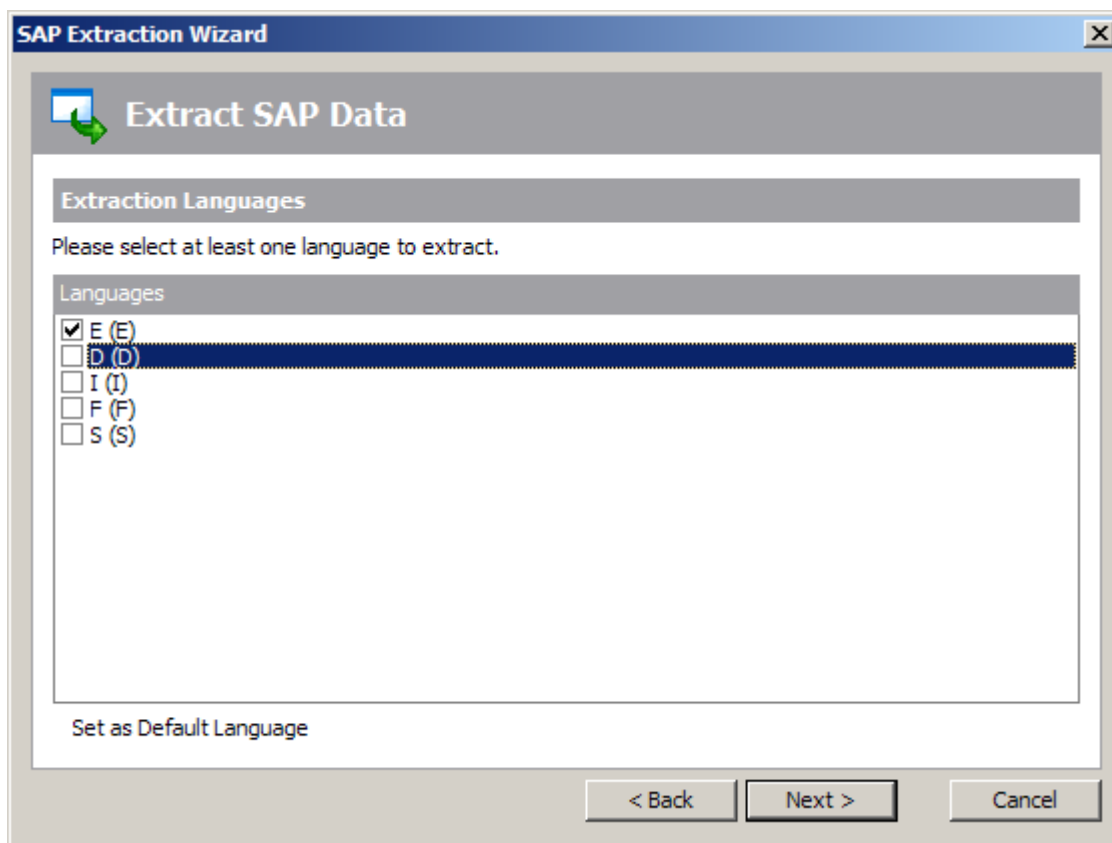


SAP Extraction Wizard – Extraction Steps

This form lists each of the stages involved in extracting metadata from an SAP system. The first 25 steps are checked 'On' and we recommend that you leave this selection and continue to the next stage. The 26<sup>th</sup> and last step is to 'Generate Extended Relationships'. This describes the process by which SA/ERP infers additional relationships for the SAP metadata by examining likely Foreign Keys in the SAP table structures. This option is checked 'Off' by default and we recommend that you only select the option to be 'On' after fully understanding the Extended Relationship generation process which is described in the 'SA/ERP User Guide.'

Click the 'Next' button to proceed to the next stage'.



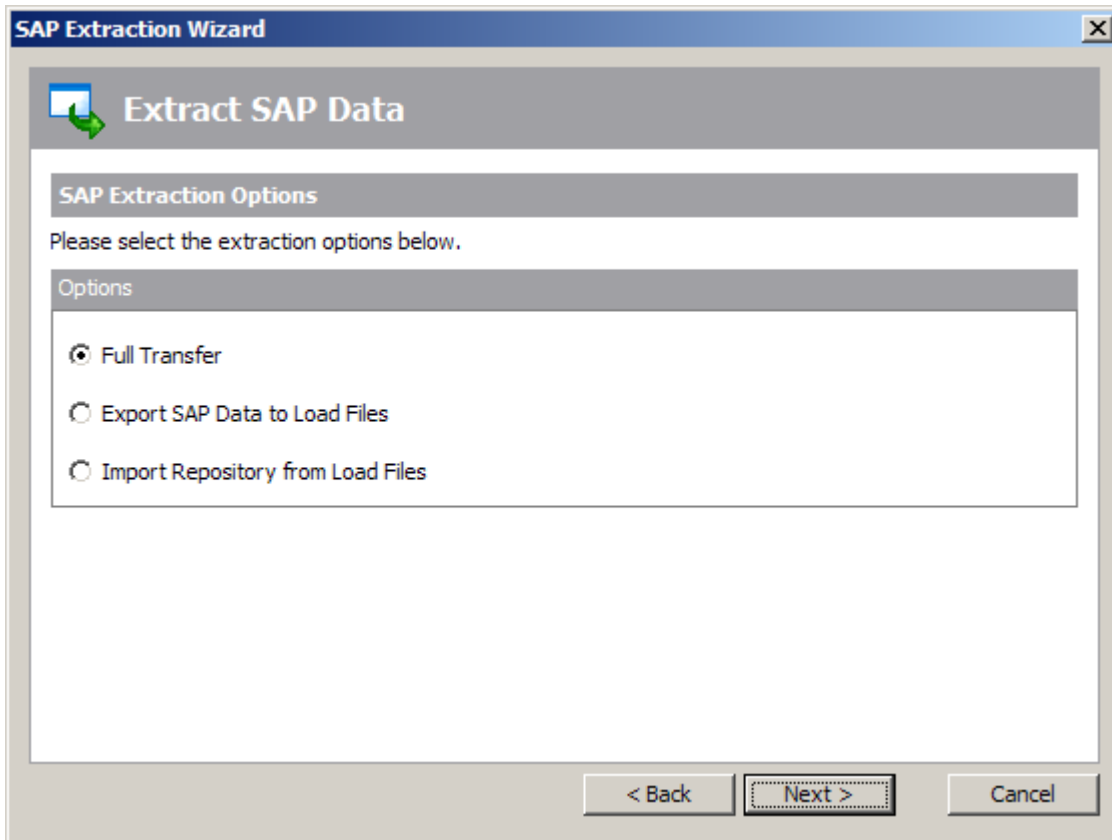


SAP Extraction Wizard – Extraction Languages

SAP holds metadata in a wide range of languages. This means that you can find descriptive table and column names, plus attribute definitions in English, German, French, Italian and many other languages. The SA/ERP extraction process lets you extract metadata for one or more of these languages.

On the Extraction Languages form, check each of the language codes you require (you must select at least one). If you do not see the languages you require, you can extend the list by editing the `saphir.ini` file. See Appendix B for details of this file.

Now click the 'Next' button to proceed to the next stage of the Extraction Wizard. If the metadata extraction for SAP is to be performed by the RFC Connection method, then the next form to be displayed will be the 'SAP Extraction Options' form. The purpose of this form is described on the next page. If the Direct DB Connect method has been chosen instead, you can skip to the next Extraction Wizard form.



SAP Extraction Wizard – SAP Extraction Options

The RFC Connect extraction method extracts metadata from SAP by invoking an SAP ABAP function which writes out a series of text files for each of the SAP metadata tables being interrogated. These text files are read by SA/ERP and the contents used to load the SA/ERP repository with the extracted data. The SAP Extraction Options form enables this process to be split into two discreet phases, should you wish. The ‘Options’ radio button controls this process. The possible values are:

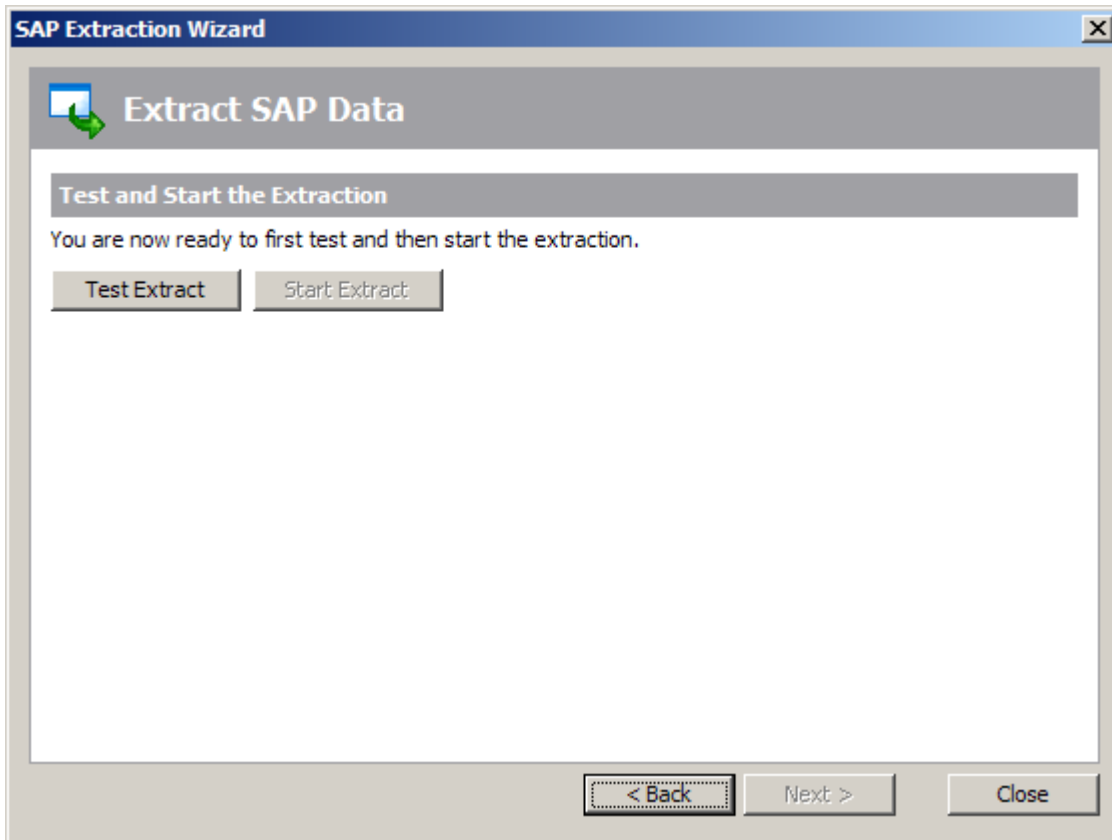
*Full Transfer* The metadata is exported to text files and then immediately read into the SA/ERP repository

*Export SAP Data to Load Files* The metadata is exported to text files only. The SA/ERP repository is not updated.

*Import Repository from Load Files* existing text files, created by a previous ‘Export SAP Data to Load Files’ session, are used to populate the SA/ERP repository

### Why would I use the Export/Import options?

The most likely use these options is when the person requiring the metadata has no access to the source SAP system and requires the extraction to be done by someone else. We recommend that you choose the ‘Full Transfer’ extraction option if you have no real reason to split the extraction process into two stages.



SAP Extraction Wizard – Test and Start the Extraction

This form is the last stage of the Extraction Wizard process.

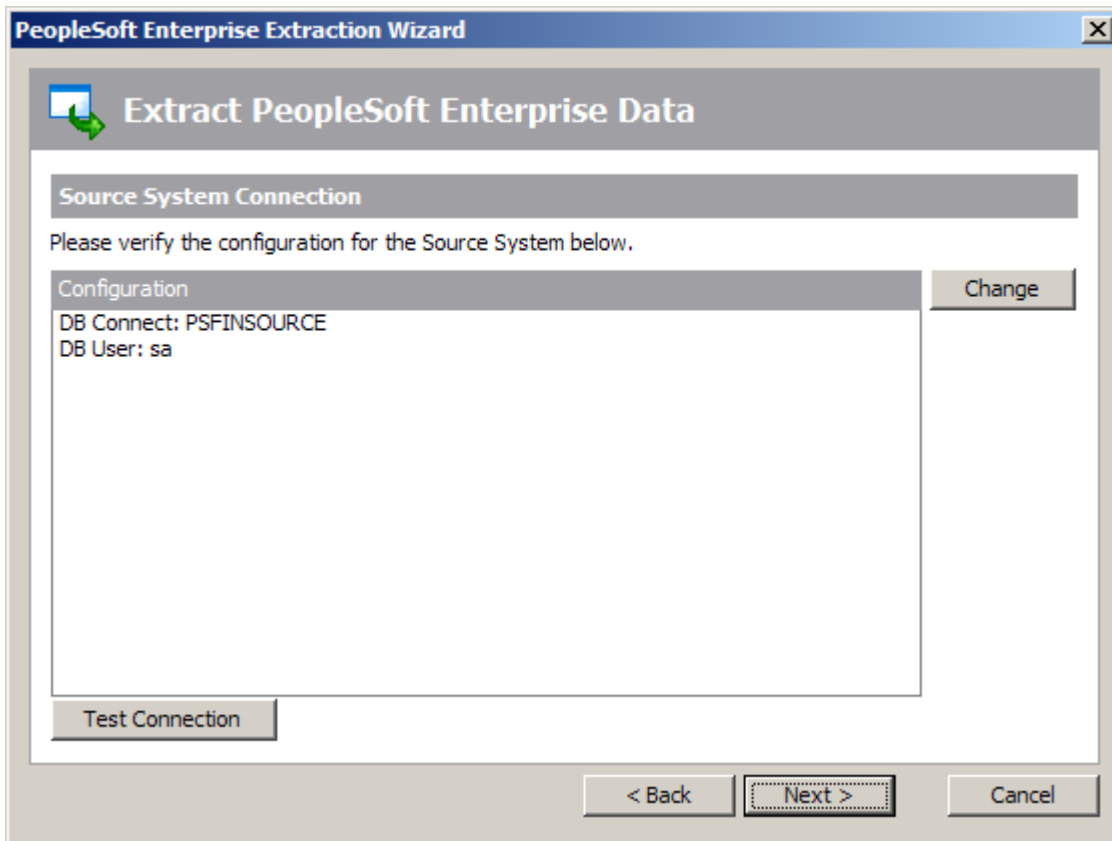
Clicking the 'Test Extract' button causes SA/ERP to run a series of queries to ensure that all the objects requested for extraction are available.

Assuming the 'Text Extract' was successful, click the 'Start Extract' button to begin the full extraction process.

A series of status messages will allow you to monitor the extraction process. Once the extraction has completed, you will be ready to browse the extracted metadata. An overview of the SA/ERP features for achieving this is provided in the next chapter.

## Extracting metadata from PeopleSoft Enterprise

Start the extraction process by selecting the 'ERP Extract' option from the SA/ERP File menu. This will start the PeopleSoft Extraction Wizard. Click the 'Next' button on the first 'Extraction Wizard' form to display the 'Source System Connection' form.



The screenshot shows a dialog box titled "PeopleSoft Enterprise Extraction Wizard" with a sub-header "Extract PeopleSoft Enterprise Data". Below this is a section titled "Source System Connection" with the instruction "Please verify the configuration for the Source System below." A table-like area contains the following configuration details:

Configuration	Change
DB Connect: PSFINSOURCE	
DB User: sa	

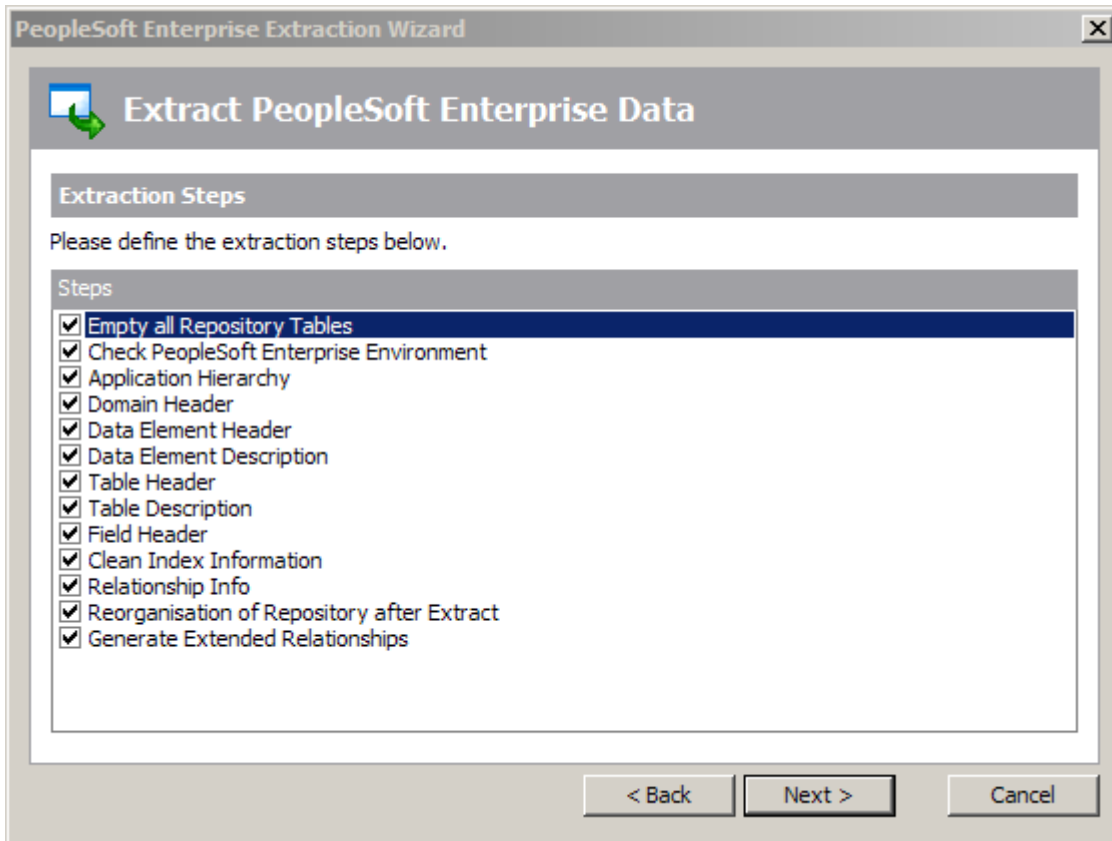
At the bottom left of the configuration area is a "Test Connection" button. At the bottom of the dialog box are three buttons: "< Back", "Next >" (which is highlighted with a dashed border), and "Cancel".

PeopleSoft Extraction Wizard – Source System Connection

This form shows a summary of the connection parameters, previously supplied when completing the Repository Wizard. You can:

- Click the 'Change' button to further amend the connection parameters
- Click the 'Test Connection' button to verify the connection through to the Application.

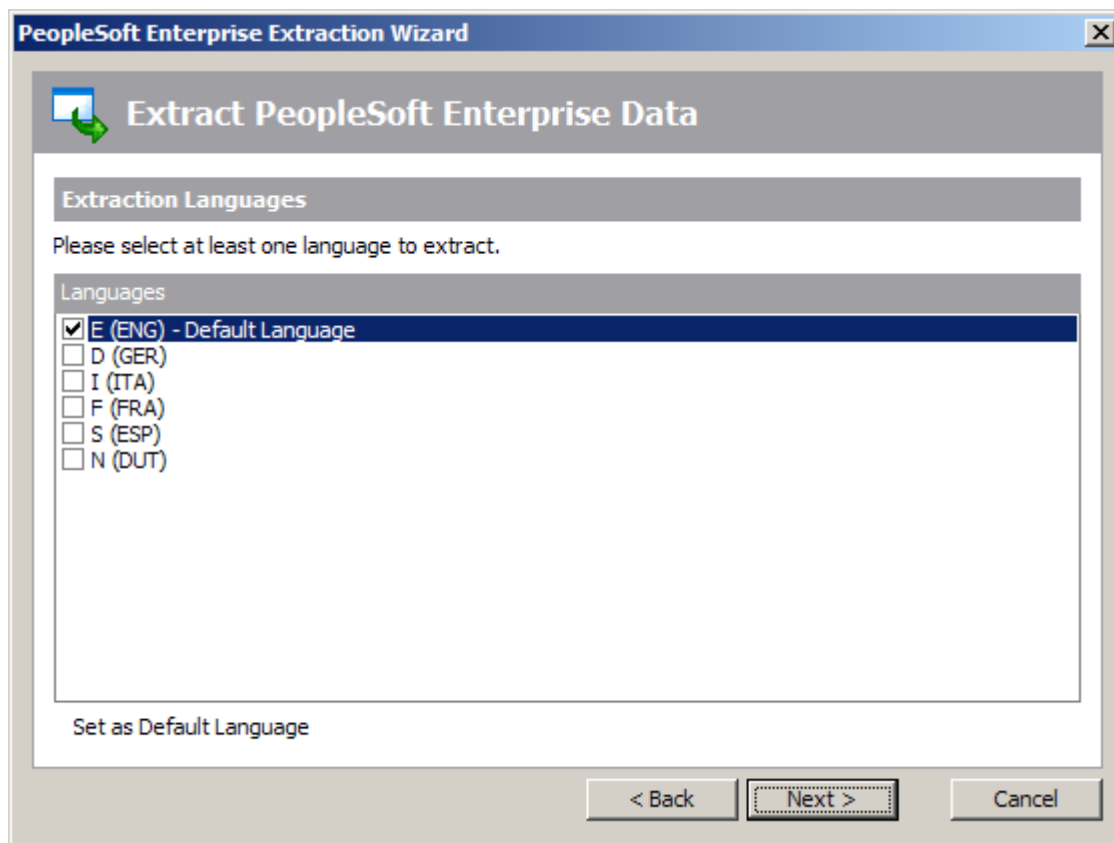
Now click the 'Next' button to proceed to the next stage.



PeopleSoft Extraction Wizard – Extraction Steps

This form lists each of the stages involved in extracting metadata from a PeopleSoft system. The 13 steps are checked 'On' and we recommend that you leave this selection and continue to the next stage. The 13<sup>th</sup> and last step is to 'Generate Extended Relationships'. This describes the process by which SA/ERP infers additional relationships for the PeopleSoft metadata by examining likely Foreign Keys in the PeopleSoft table structures. This option is checked 'On' by default and we recommend that you only select the option to be 'Off' after fully understanding the Extended Relationship generation process which is described in the 'SA/ERP User Guide.'

Click the 'Next' button to proceed to the next stage'.

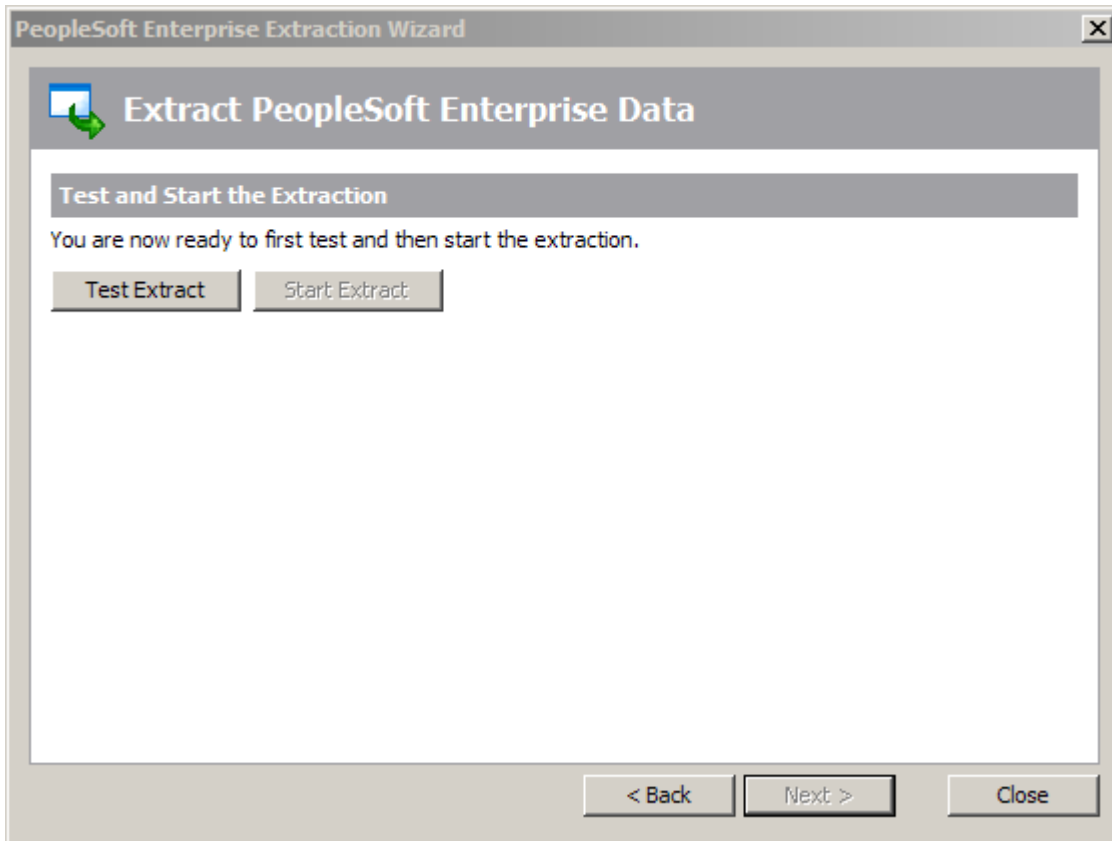


PeopleSoft Extraction Wizard – Extraction Languages

PeopleSoft holds metadata in a wide range of languages. This means that you can find descriptive table and column names, plus attribute definitions in English, German, French, Italian and many other languages. The SA/ERP extraction process lets you extract metadata for one or more of these languages.

On the Extraction Languages form, check each of the language codes you require (you must select at least one). If you do not see the languages you require, you can extend the list by editing the `saphir.ini` file. See Appendix B for details of this file.

Now click the 'Next' button to proceed to the next stage of the Extraction Wizard.



PeopleSoft Extraction Wizard – Test and Start the Extraction

This form is the last stage of the Extraction Wizard process.

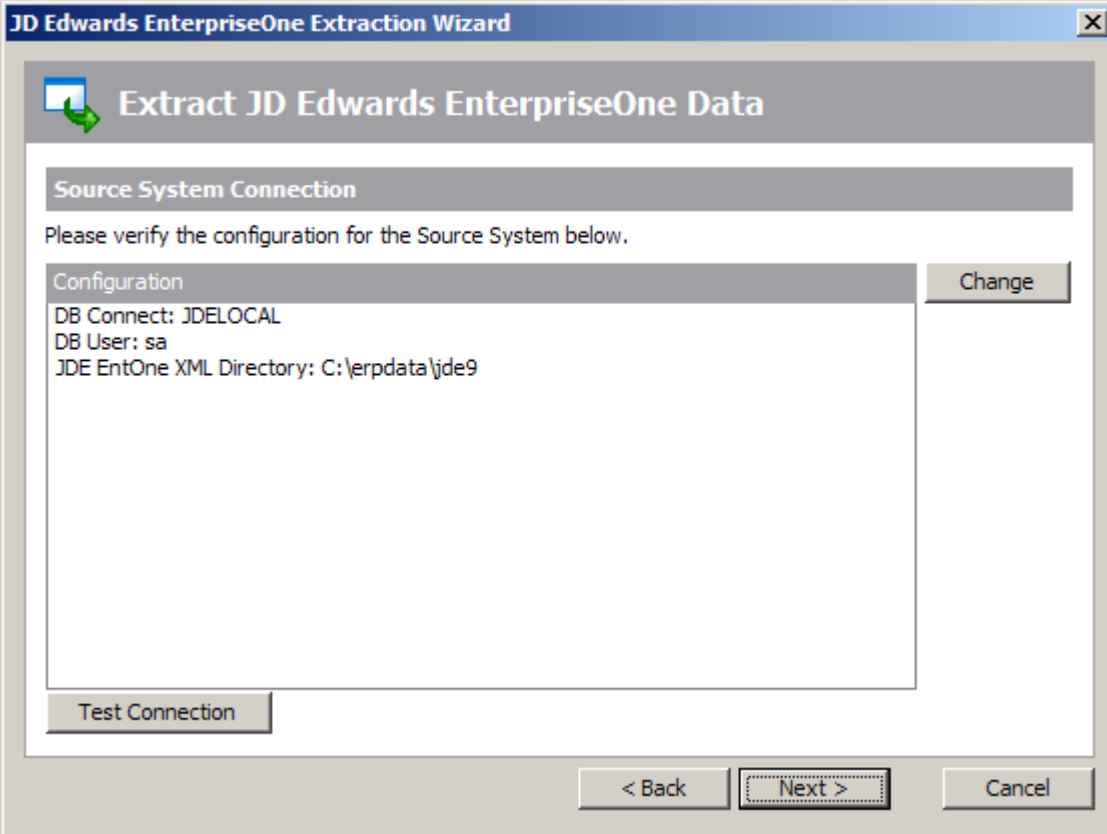
Clicking the ‘Test Extract’ button causes SA/ERP to run a series of queries to ensure that all the objects requested for extraction are available.

Assuming the ‘Text Extract’ was successful, click the ‘Start Extract’ button to begin the full extraction process.

A series of status messages will allow you to monitor the extraction process. Once the extraction has completed, you will be ready to browse the extracted metadata. An overview of the SA/ERP features for achieving this is provided in the next chapter.

## Extracting metadata from J.D.Edgeards EnterpriseOne

Start the extraction process by selecting the 'ERP Extract' option from the SA/ERP File menu. This will start the EnterpriseOne Extraction Wizard. Click the 'Next' button on the first 'Extraction Wizard' form to display the 'Source System Connection' form.



The screenshot shows a window titled "JD Edwards EnterpriseOne Extraction Wizard" with a close button in the top right corner. The main content area has a header "Extract JD Edwards EnterpriseOne Data" with a green arrow icon. Below this is a section titled "Source System Connection" with the instruction "Please verify the configuration for the Source System below." A table-like area contains the following configuration details: "DB Connect: JDELOCAL", "DB User: sa", and "JDE EntOne XML Directory: C:\erpdata\jde9". To the right of this area is a "Change" button. At the bottom left of the configuration area is a "Test Connection" button. At the bottom of the window are three buttons: "< Back", "Next >" (which is highlighted with a dashed border), and "Cancel".

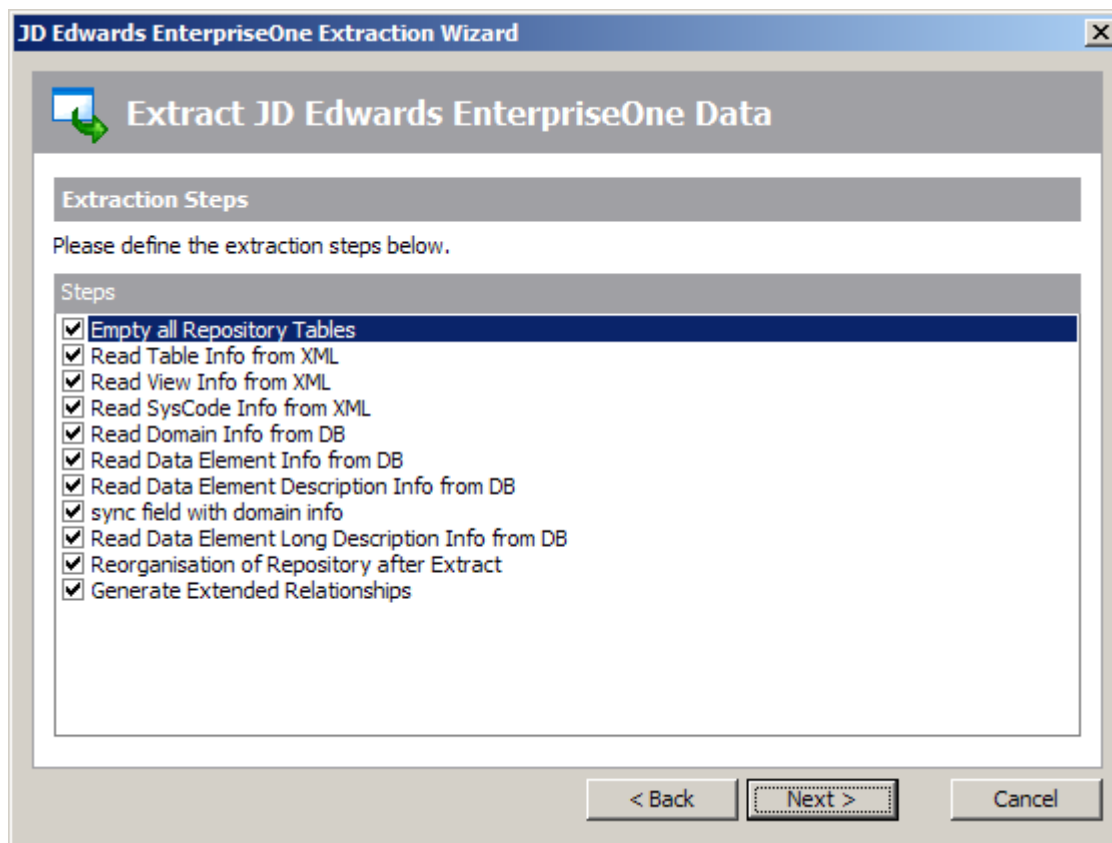
J.D.Edgeards EnterpriseOne Extraction Wizard – Source System Connection

This form shows a summary of the connection parameters, previously supplied when completing the Repository Wizard. You can:

- Click the 'Change' button to further amend the connection parameters
- Click the 'Test Connection' button to verify the connection through to the Application.

Now click the 'Next' button to proceed to the next stage.

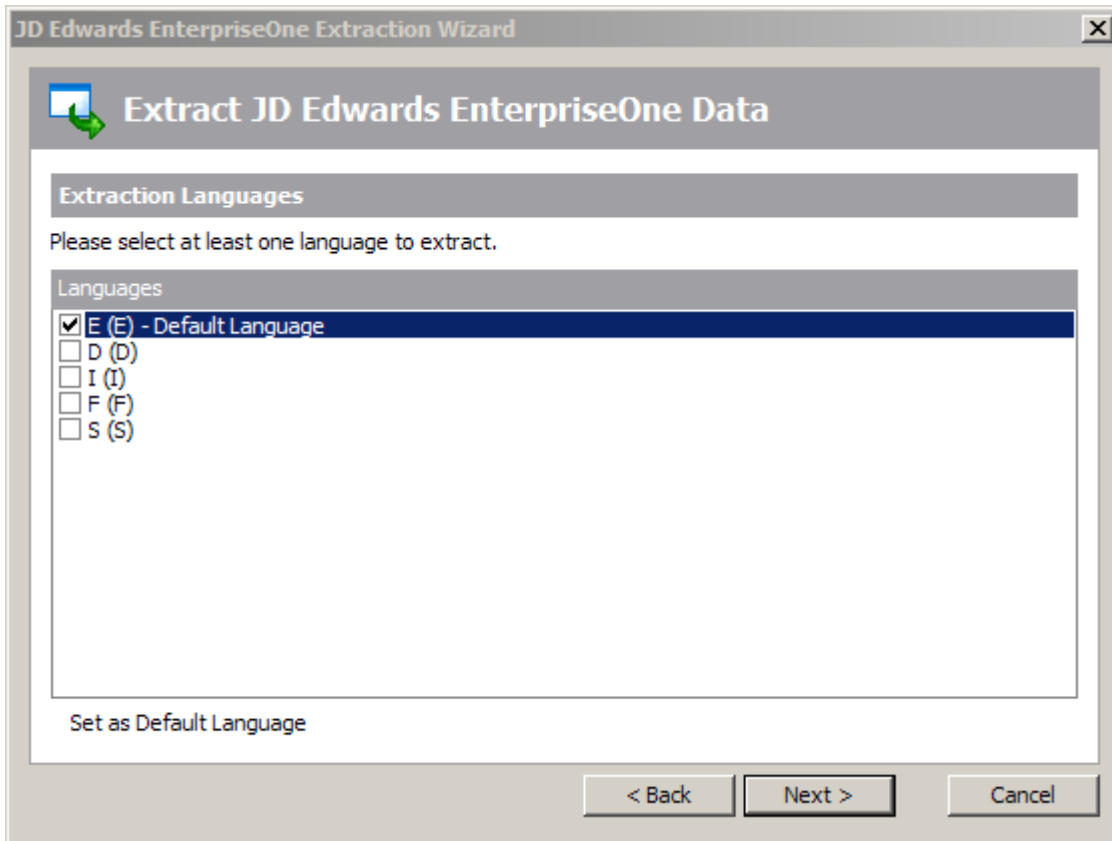




J.D.Edwards EnterpriseOne Extraction Wizard – Extraction Steps

This form lists each of the stages involved in extracting metadata from an EnterpriseOne system. The 11 steps are checked 'On' and we recommend that you leave this selection and continue to the next stage. The 11<sup>th</sup> and last step is to 'Generate Extended Relationships'. This describes the process by which SA/ERP infers relationships for the EnterpriseOne metadata by examining likely Foreign Keys in the EnterpriseOne table structures. This option is checked 'On' by default and we recommend that you only select the option to be 'Off' after fully understanding the Extended Relationship generation process which is described in the 'SA/ERP User Guide.'

Click the 'Next' button to proceed to the next stage.

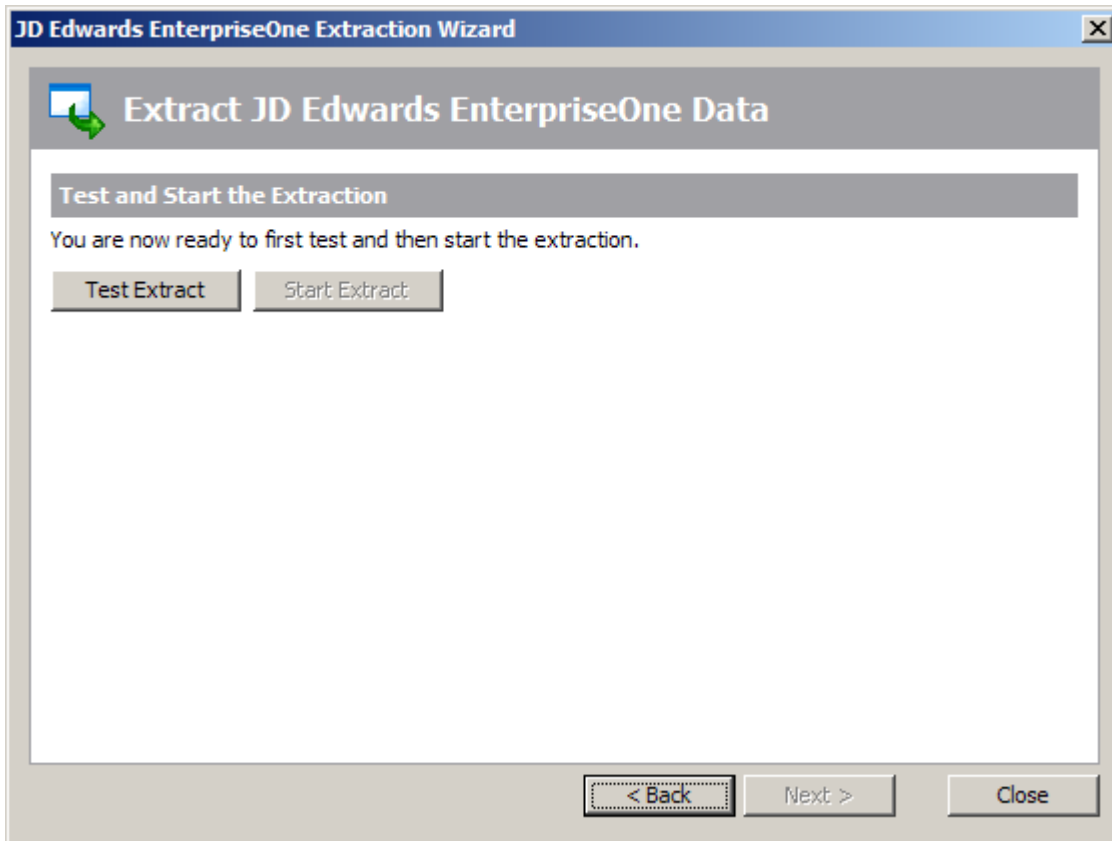


EnterpriseOne Extraction Wizard – Extraction Languages

EnterpriseOne holds metadata in a range of languages. This means that you can find descriptive table and column names, plus attribute definitions in English, German, French, Italian and many other languages. The SA/ERP extraction process lets you extract metadata for one or more of these languages.

On the Extraction Languages form, check each of the language codes you require (you must select at least one). If you do not see the languages you require, you can extend the list by editing the SA/ERP .ini file. See Appendix B for details of this file.

Now click the 'Next' button to proceed to the next stage of the Extraction Wizard.



EnterpriseOne Extraction Wizard – Test and Start the Extraction

This form is the last stage of the Extraction Wizard process.

Clicking the 'Test Extract' button causes SA/ERP to run a series of queries to ensure that all the objects requested for extraction are available.

Assuming the 'Text Extract' was successful, click the 'Start Extract' button to begin the full extraction process.

A series of status messages will allow you to monitor the extraction process. Once the extraction has completed, you will be ready to browse the extracted metadata. An overview of the SA/ERP features for achieving this is provided in the next chapter.

Chapter  
**4**


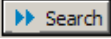
# Quick Tour of SA/ERP's Features

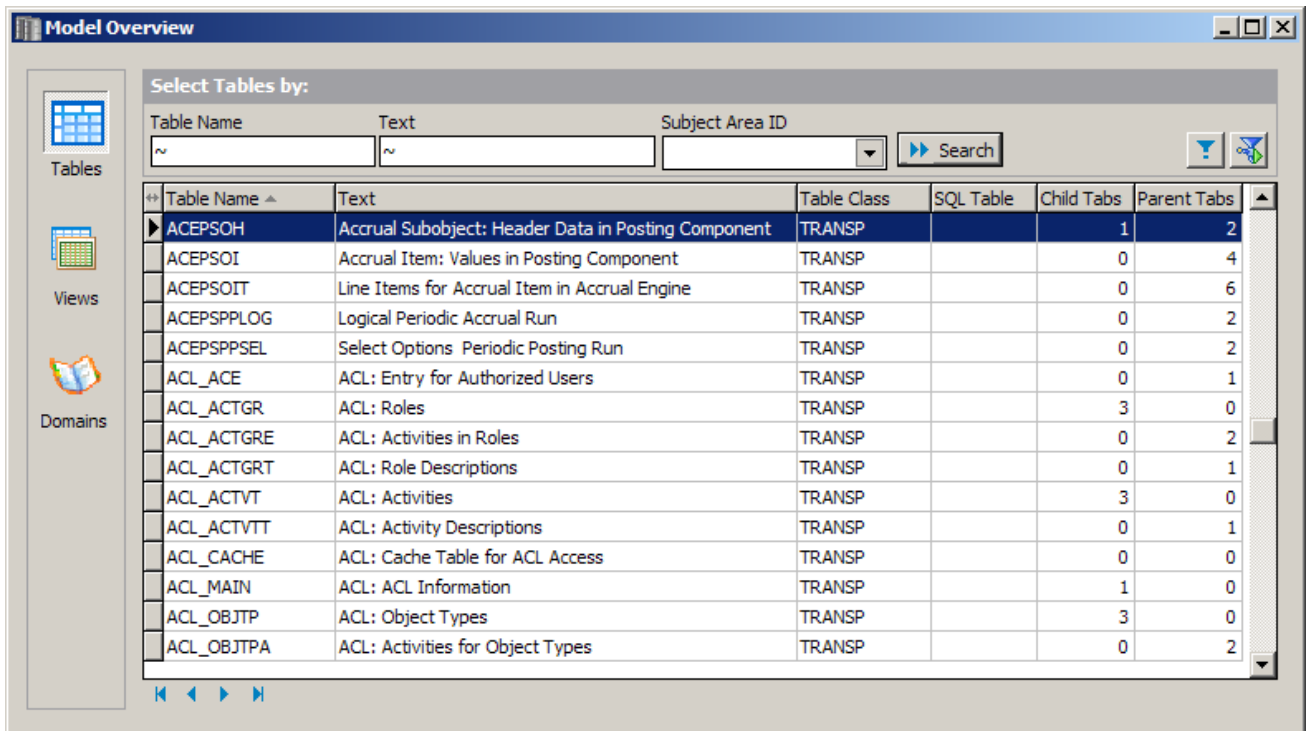
*Gives an overview of the main SA/ERP features for browsing the extracted metadata*

The extraction of metadata from your chosen Enterprise Application was described in the previous chapter. Once this process is complete, SA/ERP provides a convenient interface for exploring the metadata and exporting sub-sets into other environments.

## Browsing the metadata

The SA/ERP Model Overview is a good place to start exploring the metadata extracted from your application.

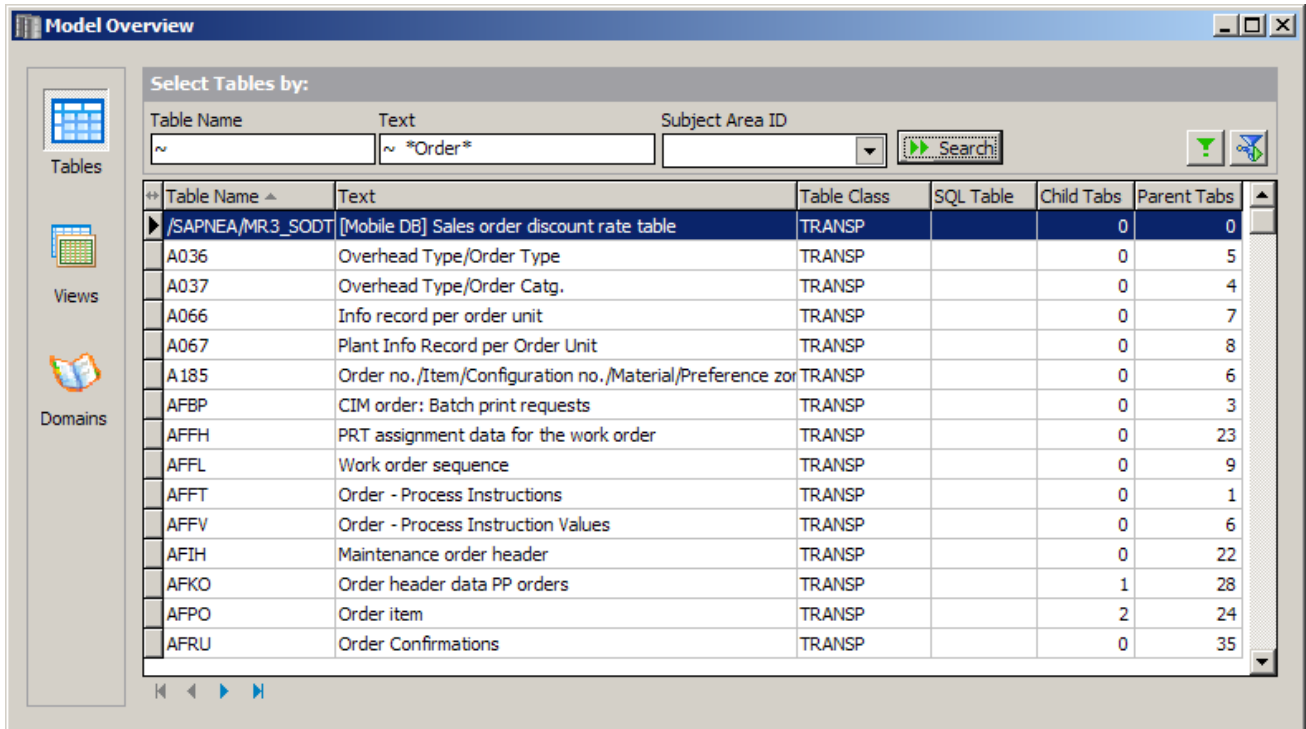
Click  on the SA/ERP toolbar to display a list of tables. This displays the 'Model Overview' form. Clicking the  button will return a list of all the tables in the SA/ERP repository. The fields displayed include the internal Table Name and the descriptive Text for each table.




The SA/ERP Model Overview

The 'Child Tabs' and Parent Tabs' columns show the total number of related 'Child' and 'Parent' tables for each table in the list.

Use the Search Criteria to reduce the list of tables down to a manageable size. For example, type '\*Order\*' into the 'Text' box and click 'Search'. This will return a list of all Tables with the characters 'Order' in the 'Text' field.



Model Overview showing the results of a Search

You can use the  button to access the advanced search facility. This allows for more complex searches to be performed. See the 'SA/ERP User Guide' for details of this feature.

## Fields

Double Click on one of the tables to see the Fields making up the table.

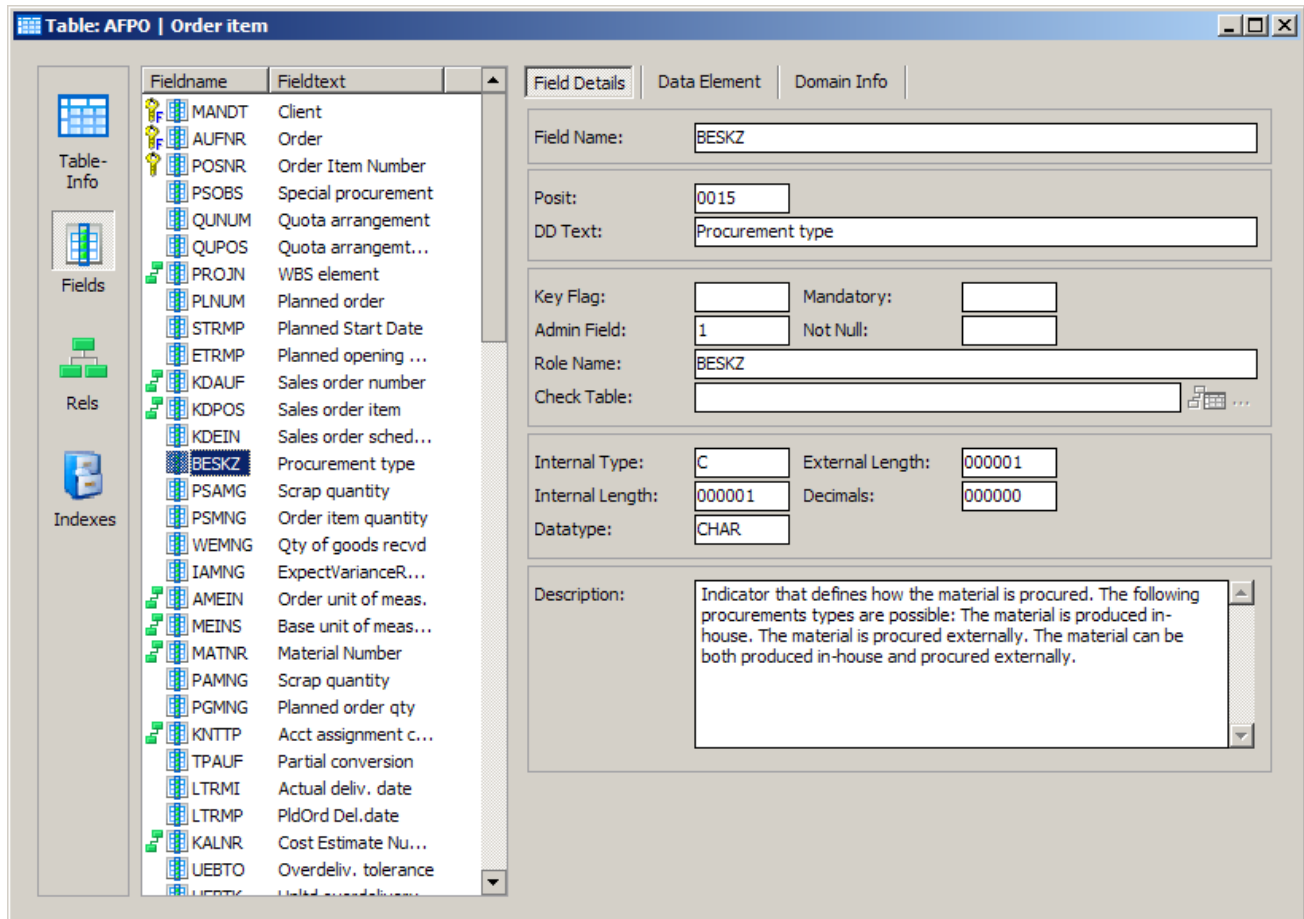

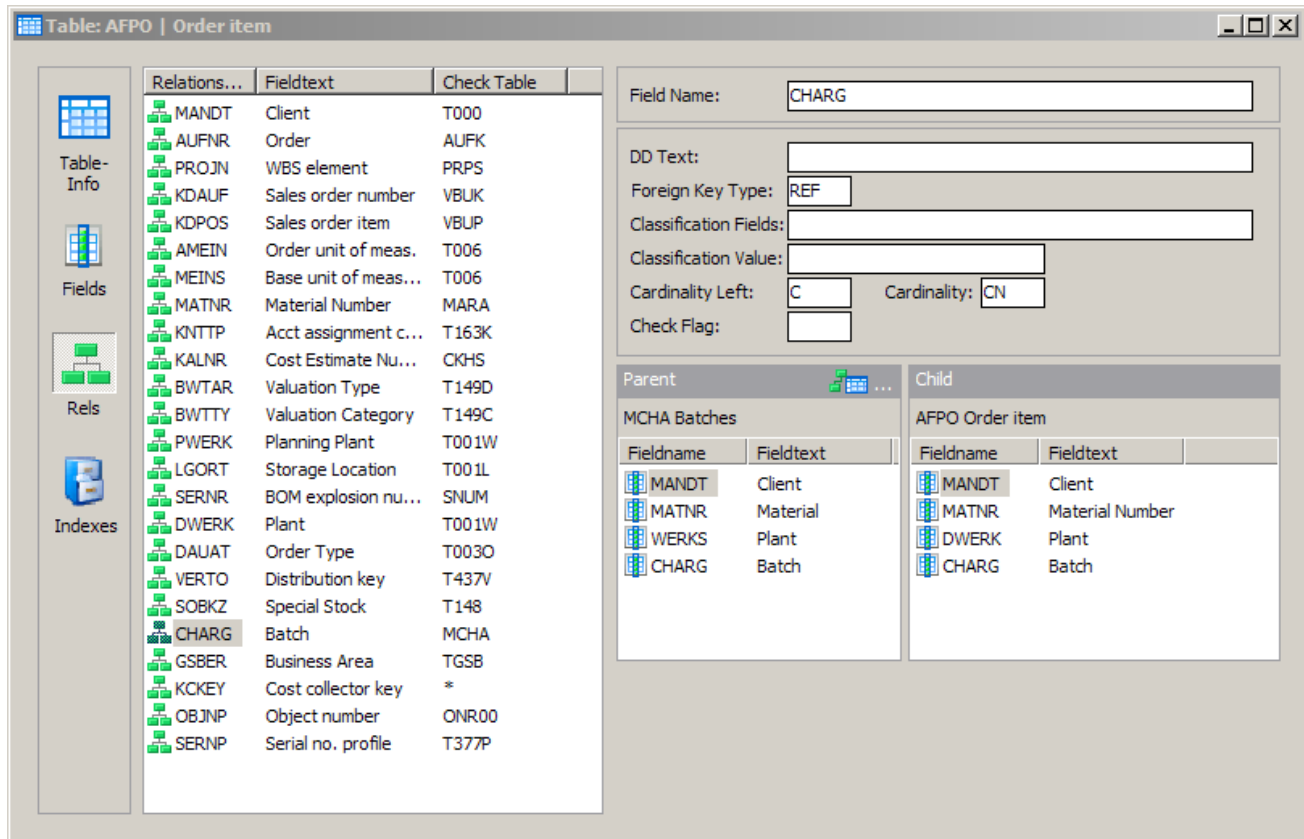


Table Field Details

Use the 'Field Details', 'Data Element', 'Domain Info' tabs to see the details of each entry in the list of fields.

## Relationships

Click on  to see all tables that have parent relationships to this table.



The screenshot shows the SAP Relationships form for the table 'AFPO | Order item'. The left sidebar contains navigation options: Table-Info, Fields, Rels (selected), and Indexes. The main area is divided into a table of relationships and a configuration panel on the right.

Relations...	Fieldtext	Check Table
MANDT	Client	T000
AUFNR	Order	AUFG
PROJN	WBS element	PRPS
KDAUF	Sales order number	VBUP
KDPOS	Sales order item	VBUP
AMEIN	Order unit of meas.	T006
MEINS	Base unit of meas...	T006
MATNR	Material Number	MARA
KNTTP	Acct assignment c...	T163K
KALNR	Cost Estimate Nu...	CKHS
BWTAR	Valuation Type	T149D
BWTTY	Valuation Category	T149C
PWERK	Planning Plant	T001W
LGORT	Storage Location	T001L
SERNR	BOM explosion nu...	SNUM
DWERK	Plant	T001W
DAUAT	Order Type	T003O
VERTO	Distribution key	T437V
SOBKZ	Special Stock	T148
CHARG	Batch	MCHA
GSBER	Business Area	TGSB
KCKEY	Cost collector key	*
OBJNP	Object number	ONR00
SERNP	Serial no. profile	T377P

The configuration panel on the right shows the following details for the selected 'CHARG' relationship:

- Field Name: CHARG
- DD Text: (empty)
- Foreign Key Type: REF
- Classification Fields: (empty)
- Classification Value: (empty)
- Cardinality Left: C
- Cardinality: CN
- Check Flag: (empty)

Below the configuration panel, there are two comparison tables:

Parent		Child	
MCHA Batches		AFPO Order item	
Fieldname	Fieldtext	Fieldname	Fieldtext
MANDT	Client	MANDT	Client
MATNR	Material	MATNR	Material Number
WERKS	Plant	DWERK	Plant
CHARG	Batch	CHARG	Batch

Relationships

The relationships form lists all the relationships that supply a foreign key to the currently selected table. Clicking on a relationship displays the join fields on the right of the form.

## Indexes



Click on to see a list of the Indexes for the table.

Index	Fields
PK\$	MANDT, AUFNR, POSNR
1	MANDT, MATNR, PWERK, DNR...
2	MANDT, PROJN
3	MANDT, KDAUF, KDPOS

Fieldname	Fieldtext
MANDT	Client
MATNR	Material Number
PWERK	Planning Plant
DNREL	Not Relevant
ELIKZ	Delivery Completed
DGLTS	Scheduled finish
DWERK	Plant

Table Index information


The indexes form lists all the indexes for the currently selected table. Clicking on a index displays the index members on the right of the form.

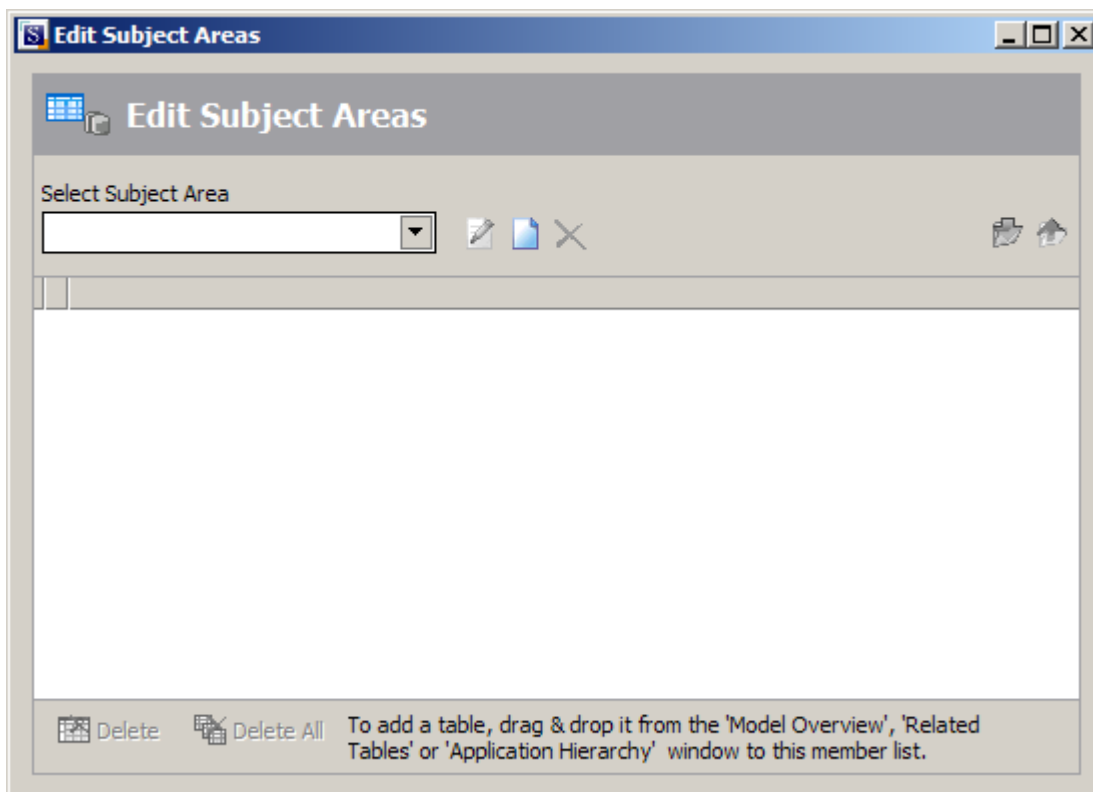


## Using Subject Areas


Subject Areas allow the tables 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.

To create and use a Subject Area, click the  icon on the SA/ERP toolbar. This will display the Edit Subject Areas form which has features for creating and populating subject areas.



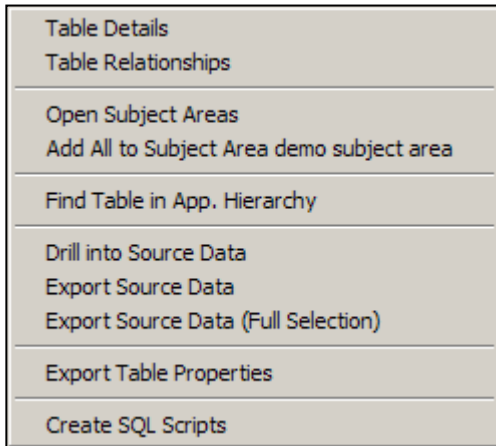
The Subject Area form

Click the  icon to create a new subject area and enter a suitable name.

## Adding tables to a Subject Area

There are a number of methods for populating a subject area and these are described fully in the SA/ERP User Guide. One of the most commonly used methods is to drag and drop tables from the Model Overview (see 'Browsing the metadata above'). Return to the main table list and use the Select Tables feature described above to reduce the list of tables to a manageable size.

With the Subject Areas form open, Right Mouse Click on the list of tables in the Model Overview and click the 'Add All to Subject Area...' button.




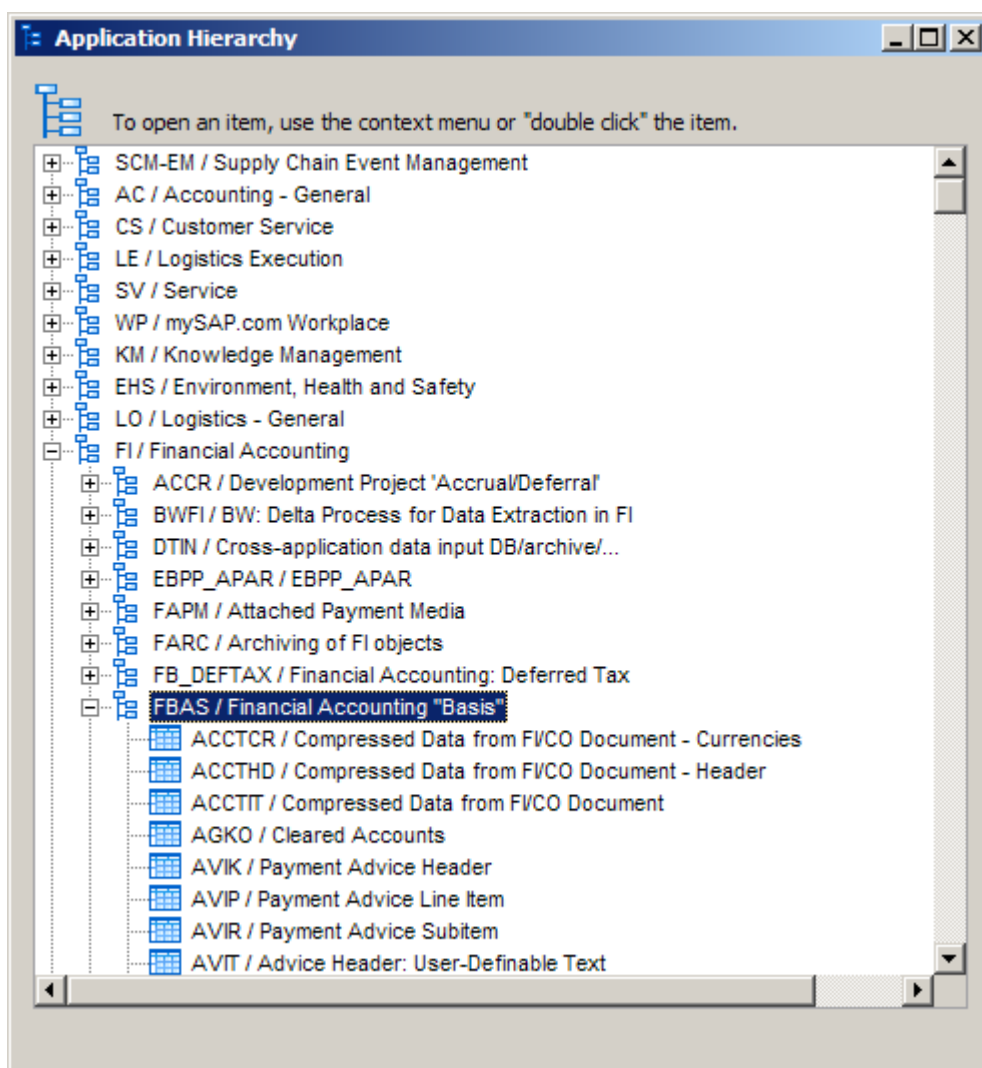
Model Overview popup menu

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.

## Navigating tables via 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 (see 'Browsing the metadata' above) are organised in a 'tree' structure by application module.

Click the  icon on the SA/ERP toolbar 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.




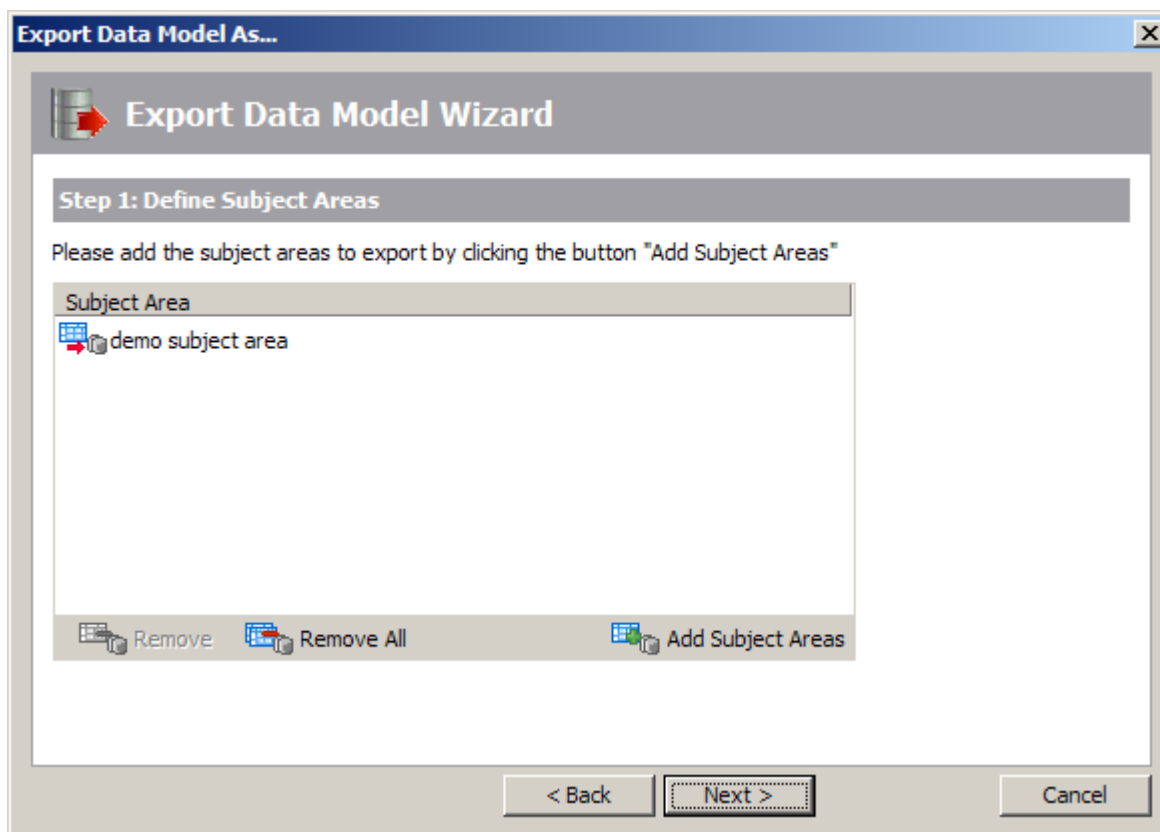
Displaying the Application Hierarchy

Clicking on a Module expands a tree of subsidiary 'objects'. These objects can be sub-modules, Development Classes (SAP only) or (at the lowest level of the hierarchy) Tables or Views. Right mouse clicking on an object with a subject area open provides a facility to add all objects of a given tree level to the selected subject area.

See the SA/ERP User Guide for more details on Application Hierarchy navigation.

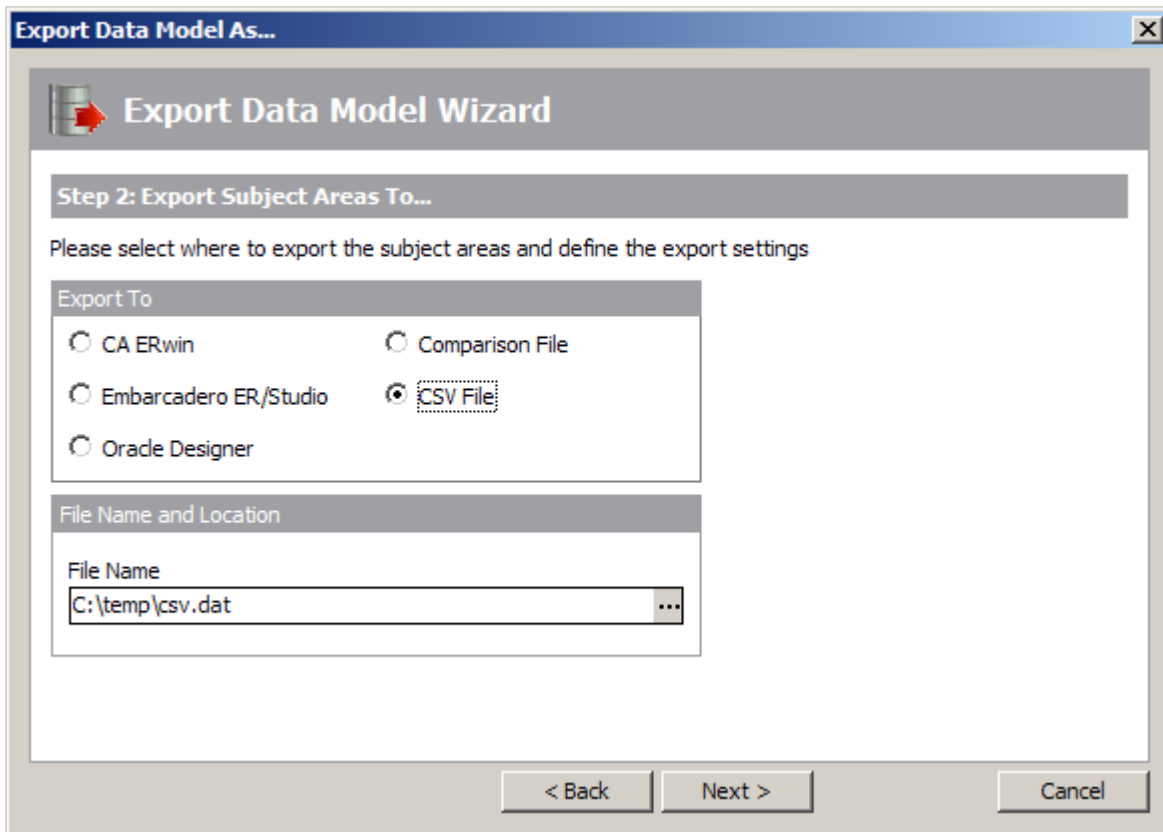
## Exporting to third party tools

The Export to third party tools is based on the SA/ERP subject area concept. To begin the process of exporting the chosen data definitions to the tool of choice, click the  icon on the SA/ERP tool bar to open 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 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.



Export Wizard – choosing the export format

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.

## Installing the SAP ABAP Function

*Step-by-step guide to setting up the ABAP code used by SA/ERP to extract metadata*

If extraction of metadata from SAP via RFC calls has been chosen, then the following steps will need to be completed by an SAP proficient programmer or administrator.

SA/ERP includes an ABAP Function Module which is called at run-time to extract metadata from the appropriate SAP data dictionary tables.

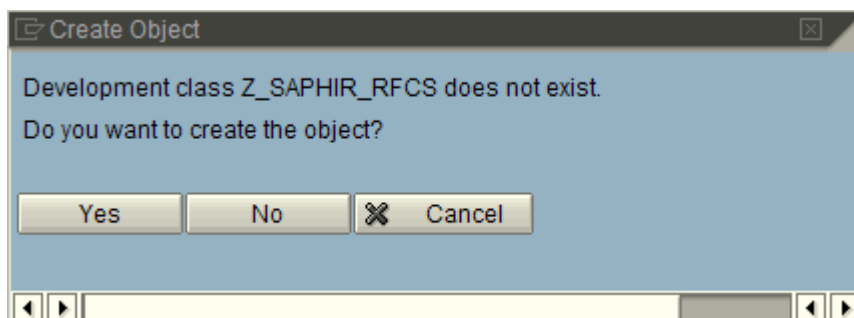
The steps below deal with configuring, loading and testing this module.

The screen shots included in this section are from an SAP 4.6 release – there may be slight differences in the screen layouts for earlier or later releases.

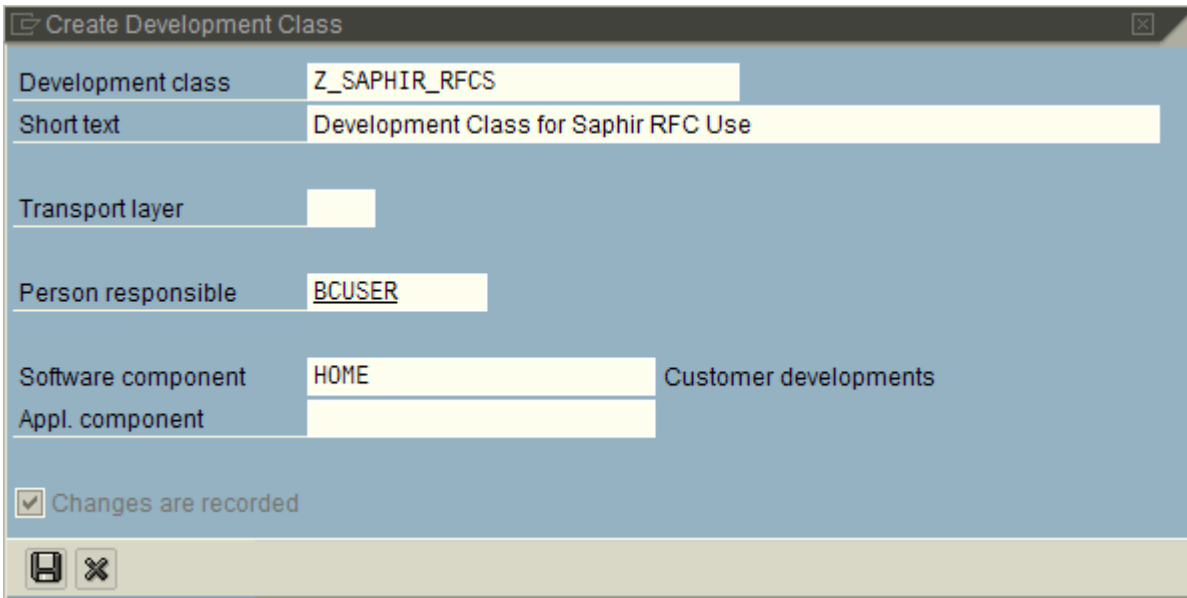
### Create a Development Class

An existing development class can be used, or use these steps to create a new development class. Go to the ABAP Workbench and proceed as follows:

1. Choose Object Navigator or call Transaction SE80
2. Choose Development Class
3. Enter a new development class name (e.g. Z\_saphir\_RFCS) and choose 'Display'
4. Click 'Yes' on the 'Create Object' form to display the 'Create Development Class' form



Create Object



Create Development Class

Enter a suitable 'Short Text' and click the Save icon.

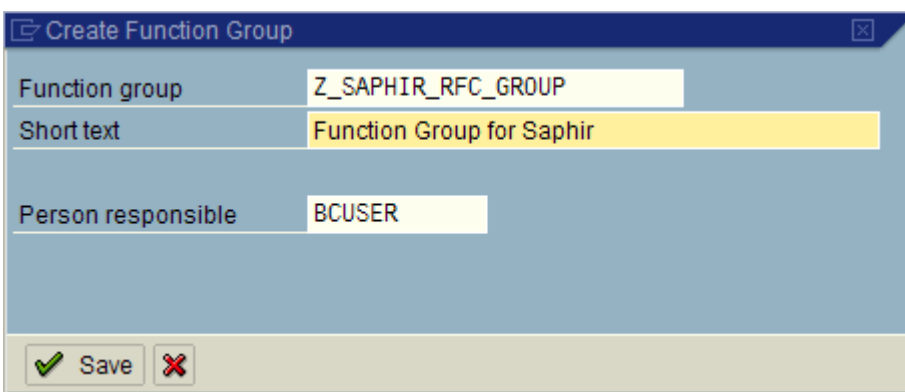
## Create a Function Group

An existing function group can be used, or use the steps below to create a new group. This is a similar process to the creation of the development class.

From the Object Navigator, choose an object type of 'Function group'.

Enter a new function group name (e.g. Z\_saphir\_RFC\_GROUP) and choose 'Display'.

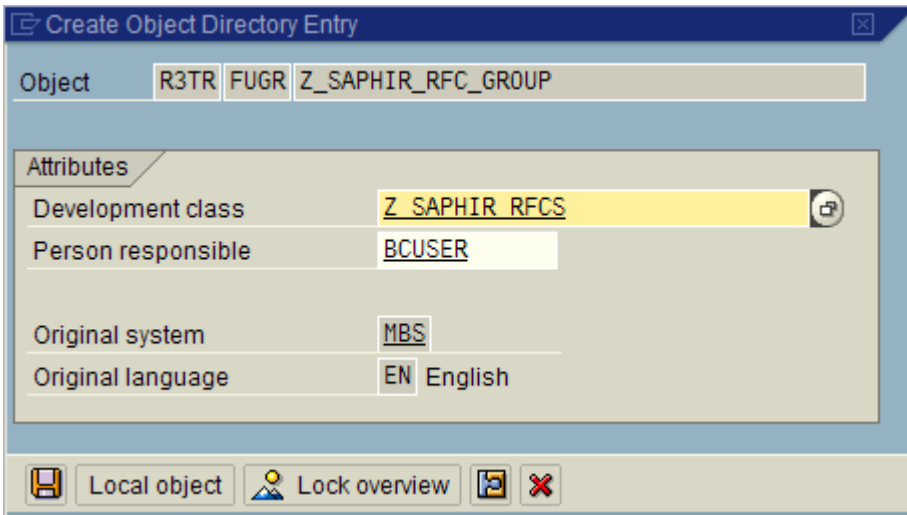
Click 'Yes' on the 'Create Object' form to display the 'Create Function Group' form.



Create Function Group

Enter a suitable 'Short Text' and click the Save icon.

This will prompt the display of the 'Create Object Directory Entry' form.

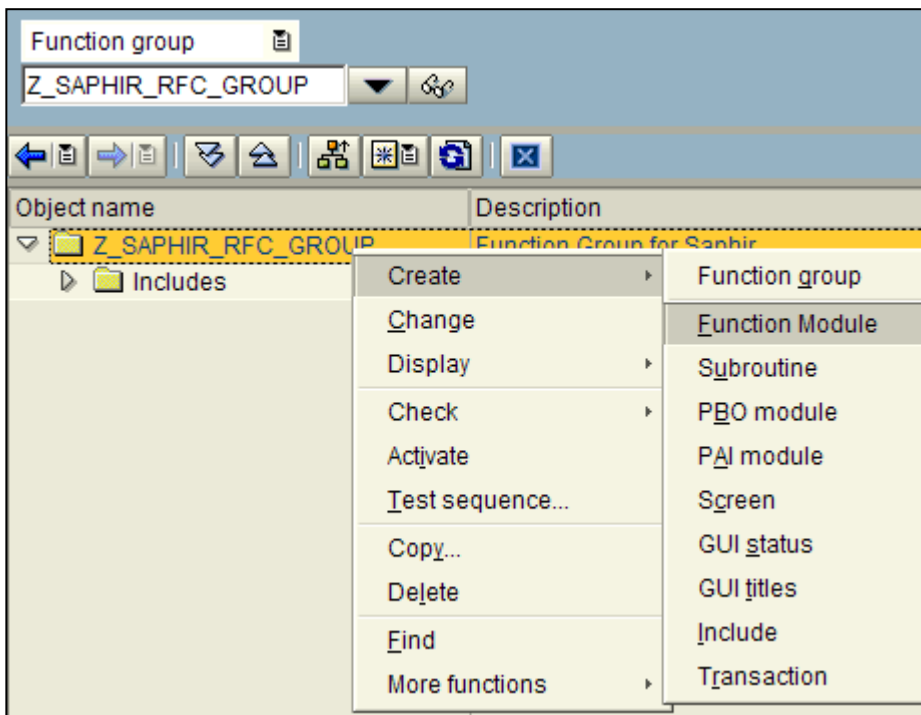


Create Object Directory Entry

Enter the name of the Development class created in the previous step and click the save icon.

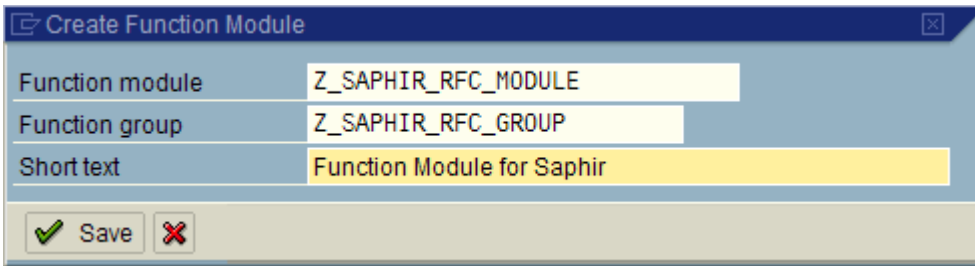
## Create the ABAP Function Module

From the Object Navigator, right mouse click on the Function Group created in the previous step and click 'Create' and then choose 'Function Module'



Create new Function Module



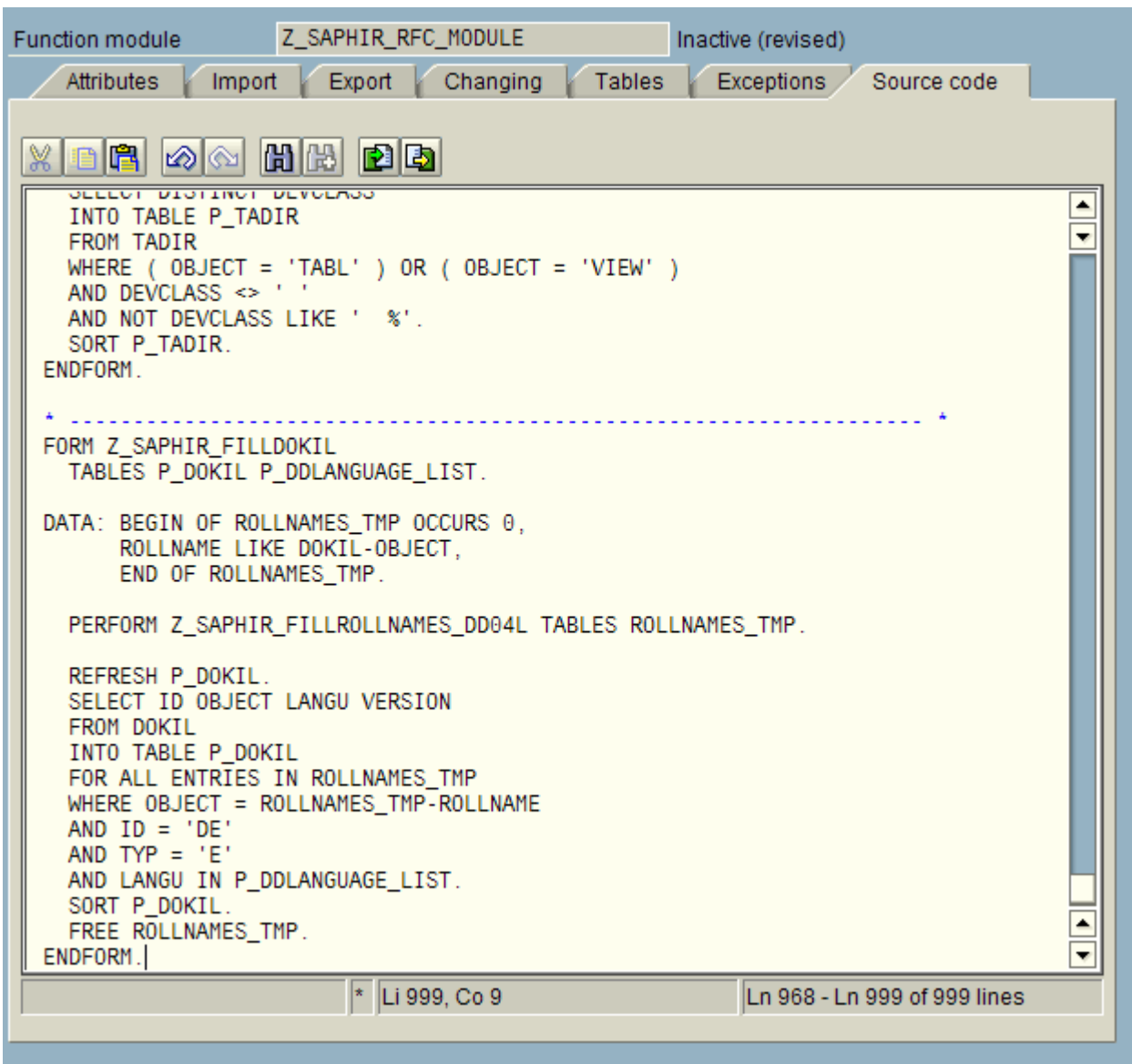


Create the Function Module

On the 'Create Function Module' form, enter a name and a Short text description for the Module and click the Save icon.

Now open the delivered ABAP text file with Notepad. The ABAP code is installed in the saprfc folder below the default SA/ERP folder and is a file called z\_saphur\_rfcs\_ddexpv3.txt. Copy the full text to the clipboard.

Return to the Function module, click on the 'Source code' tab and replace the contents of the work space with the contents of the clipboard.



Source Code tab showing SA/ERP ABAP function

Another option for loading the source code is to use the 'Upload' option from the 'Utilities' menu to load directly from the file.

Now click the 'Attributes' tab and click the 'Remote-enabled module' radio button.

Function Module Attributes tab

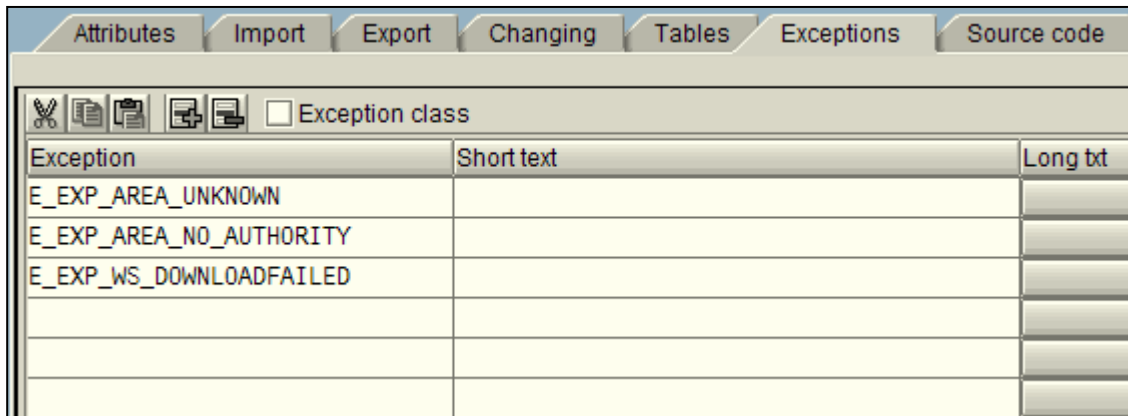
Click the 'Import Parameters' tab and entering the parameters as shown in the form below

Parameter name	Type...	Reference type	Default value	Opt...	Pa...	Short text
P_EXP_AREA	LIKE	DD02L - TABNAME		<input type="checkbox"/>	<input checked="" type="checkbox"/>	
P_EXP_FILE_NAME	LIKE	RLGRAP - FILENAME		<input type="checkbox"/>	<input checked="" type="checkbox"/>	
P_LANGUAGE_LIST	LIKE	L001TAB - DATA		<input type="checkbox"/>	<input checked="" type="checkbox"/>	
P_TRIAL_MODE	LIKE	DD02L - AS4LOCAL		<input type="checkbox"/>	<input checked="" type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	
				<input type="checkbox"/>	<input type="checkbox"/>	

Function Module Import Parameters

Ensure that the 'Pass Value' check box is checked for each parameter.

Click the 'Exceptions' tab and enter the parameters as shown on the form below.

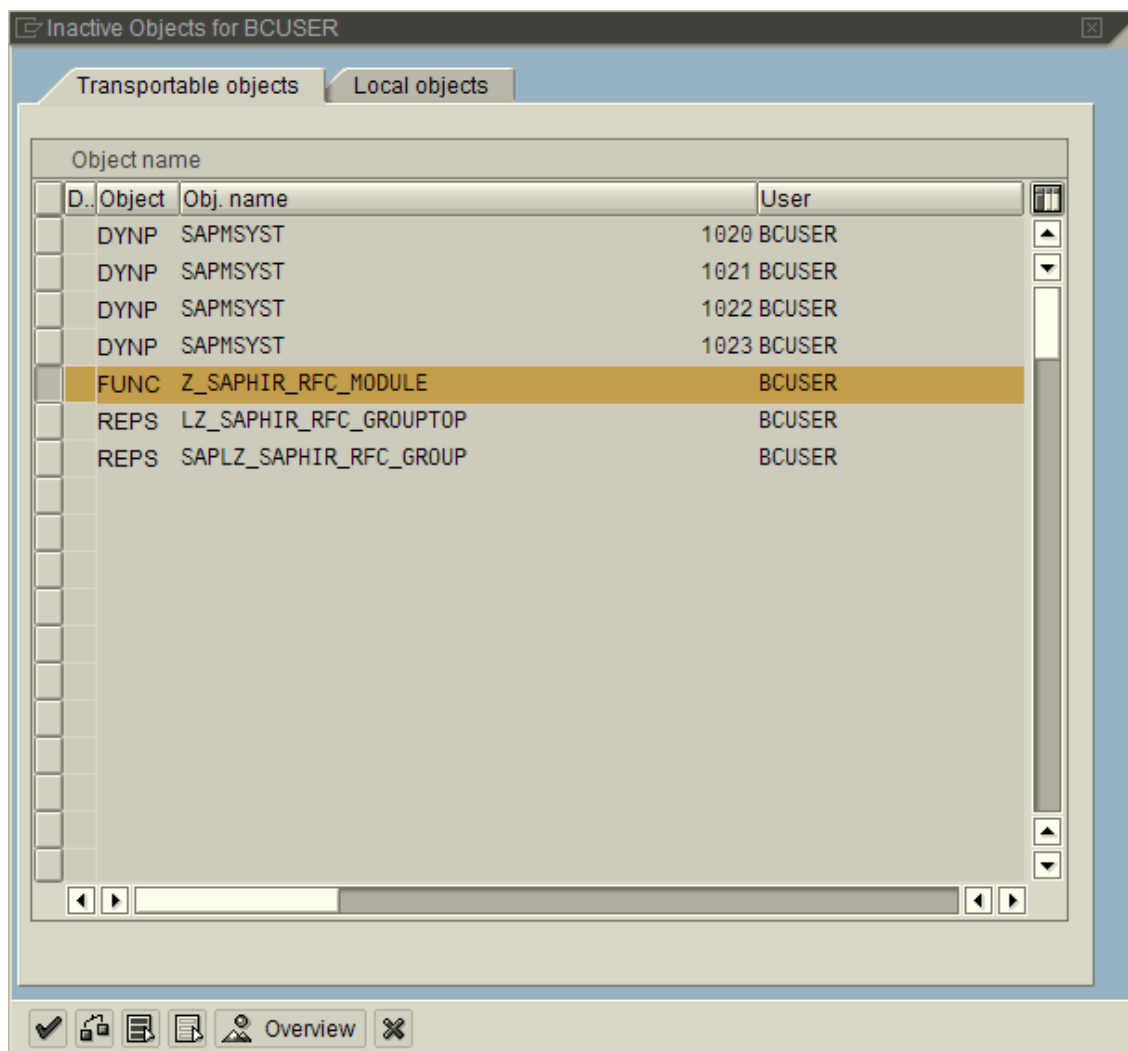


Function Module Exceptions tab

### Testing the Function

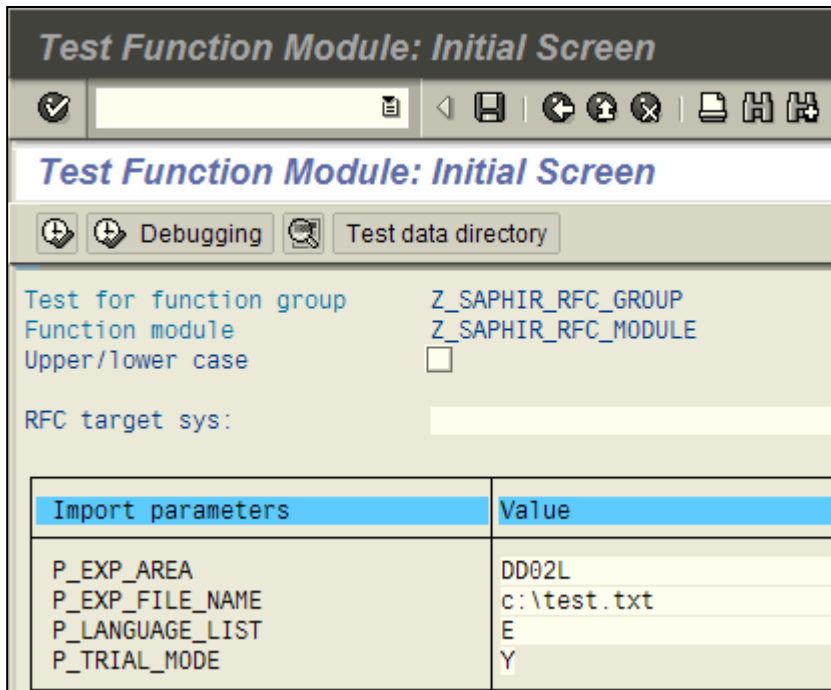
After completing all of the above steps, press CTRL+F2 to syntax check the code.

If the Check returns 'No syntax errors found', press CTRL+F3 to Activate the function.



Activating the Function Module

Then click 'F8' to test the Function.



Testing the Function Module

Enter values for the Import parameters as follows:

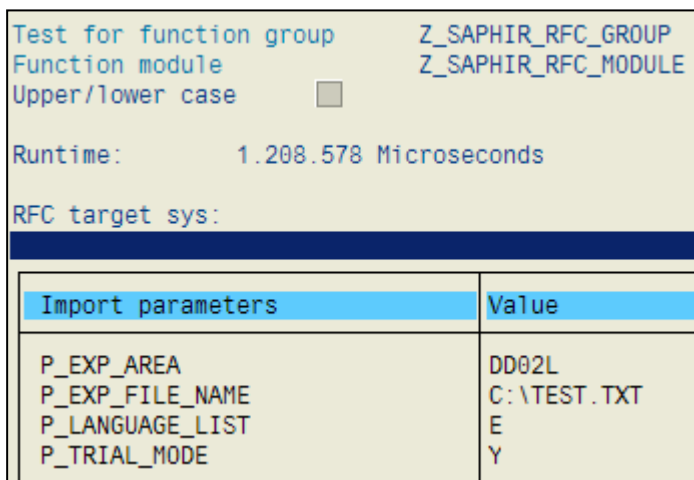
P\_EXP\_AREA: DD02L (one of the data dictionary tables used by SA/ERP)

P\_EXP\_FILE\_NAME: enter a suitable location for the file created by the function

P\_LANGUAGE\_LIST: Enter a valid SAP language code

P\_TRIAL\_MODE: Y (this will run the function without exporting actual data)

A successful result will look like the following form.



Result of test run on the function module

An export file will be created of zero bytes.

A further (optional) test would be to run the Function with the P\_TRIAL\_MODE set to 'N'. This will export the whole DD02L table into the named export file.

## The Saphi.ini file


*Describes the structure and usage of the saphi.ini file*

**T**he saphir.ini file stores most of the options used by SA/ERP. It is not normally necessary to modify the file manually, but there are a few circumstances where this may be necessary. These are described below.

**IMPORTANT NOTE:** It is advisable to backup the .ini file before making any changes. If in doubt, please contact your SA/ERP representative.

### File usage

The saphir.ini file is used by SA/ERP to record the values it requires for connecting to both the SA/ERP repository and the Enterprise Application(s) being used by SA/ERP for metadata extraction. When SA/ERP is installed, a file called 'saphir\_ref.ini' is created in the SA/ERP installation folder. A copy of this file is made as saphir.ini and this forms the default location for .ini file settings.

You may change the location and name of this file by clicking the  button on the Repository Manager toolbar. This leads to a form that allows you to specify another name and/or location for the file.

### File structure

The saphir.ini 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:

[EXTRACT\_LANGUAGES\_ERP\_SAP]

Lists the available languages for extraction of descriptive fields from SAP. A typical set are coded in the default saphir.ini file, but you may need to add your own if you wish to extract metadata in a language not included in the list. The section format is shown in the following example:

```
[EXTRACT_LANGUAGES_ERP_SAP]
LANGUAGE_1=E;E
LANGUAGE_2=D;D
```

```
LANGUAGE_3=I;I
LANGUAGE_4=F;F
```

#### [EXTRACT\_LANGUAGES\_ERP\_PeopleSoft]

Lists the available languages for extraction of descriptive fields from PeopleSoft. A typical set are coded in the default saphir.ini file, but you may need to add your own if you wish to extract metadata in a language not included in the list. The section format is shown in the following example:

```
[EXTRACT_LANGUAGES_ERP_PeopleSoft]
LANGUAGE_1=E;ENG
LANGUAGE_2=D;GER
LANGUAGE_3=I;ITA
LANGUAGE_4=F;FRA
LANGUAGE_5=S;ESP
```

#### [EXTRACT\_LANGUAGES\_ERP\_JDE]

Lists the available languages for extraction of descriptive fields from JDE. A typical set are coded in the default saphir.ini file, but you may need to add your own if you wish to extract metadata in a language not included in the list. The section format is shown in the following example:

```
[EXTRACT_LANGUAGES_ERP_JDE]
LANGUAGE_1=E;E
LANGUAGE_2=D;D
LANGUAGE_3=I;I
LANGUAGE_4=F;F
LANGUAGE_5=S;S
```

#### [DOMAIN\_TYPE\_CONVERSION]

This area shows a table of logical SA/ERP domain types and how they map to the various RDBMS' supported by SA/ERP. The section format is shown in the following example:

```
[DOMAIN_TYPE_CONVERSION]
HEADER= DOMTYPE;    ORACLE;    MSSQL;    DB2;    Informix;    ACCESS2000;
RULE01= ACCP;      VARCHAR2(1);  CHAR(1);  CHAR(1);  CHAR(1);  CHAR(1);
RULE02= CHAR;      VARCHAR2(1);  CHAR(1);  CHAR(1);  CHAR(1);  CHAR(1);
RULE03= CLNT;      VARCHAR2(1);  CHAR(1);  CHAR(1);  CHAR(1);  CHAR(1);
RULE04= CUKY;      VARCHAR2(1);  CHAR(1);  CHAR(1);  CHAR(1);  CHAR(1);
```

#### [JDEHINTS\_DIMENSION\_TABLES]

This section is used by the Extended Relationship Generation feature of SA/ERP. Please see the SA/ERP User Guide for more details on how to use this feature. The section format is shown in the following example:

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

### [PSOFTHINTS\_PARENT\_TABLES]

This section is used by the Extended Relationship Generation feature of SA/ERP. Please see the SA/ERP User Guide for more details on how to use this feature. The section format is shown in the following example:

```
[PSOFTHINTS_PARENT_TABLES]
TABLES01=VENDOR;
```

### [REPO\_x]

There will be one of these sections for each repository defined. The 'x' part of the name starts at 0 and is incremented by 1 for each repository created. The section format is shown in the following example:

```
[REPO_0]
Name=SAP
Description=SAP 4.7
ERPTType=1
RepoDBAlias=MyERP
RepoUserName=sa
RepoPassword=
RepoServerType=2
RepoServerCaseSensitive=0
RepoMoreThanOneLanguage=0
SourceServerType=0
SourceDBAlias=SAP1
SourceUserName=SAPUSR
SourcePassword=DE275AA1
SourceTableOwner=SAP
SourceServerSAPPCByteOrder=1
SourceSAPViaRFC=1
SourceSAPRFCAppServer=SAP1
SourceSAPRFCSystemNo=00
SourceSAPRFCClientNo=800
SourceSAPRFCUserName=USER1
SourceSAPRFCPassword=DC3458B24488
SourceSAPRFCLanguage=E
SourceSAPRFCOptionalRouting=
SourceSAPRFCGUIVersion=1
SourceSAPRFCFuncName=Z_saphir_RFC_DDEXPV3
SourceSAPRFCExtractSubMode=0
SourceSAPRFCExtractPath=c:\sapdata\
SourceJDEXMLDirectory=
ExtractLanguageSettings=E;
```

## Using SAPRFC.ini with SA/ERP

*Describes how to use the SAPRFC.ini file to attach to SAP systems with SA/ERP*

The SA/ERP SAP RFC connection method uses a set of parameters to establish connection with a SAP instance. These are described in the section 'Entering the SAP RFC connection settings' in Chapter 2 of this manual. The SAPRFC.ini file allows a richer set of parameters to be used where the standard set shown in the SA/ERP are not sufficient to perform a satisfactory connection.

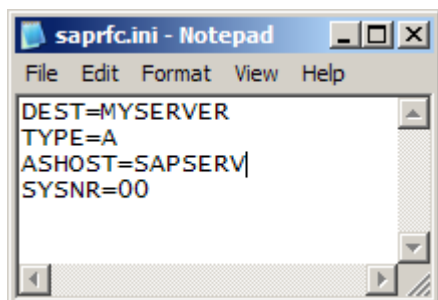
### Creating the SAPRFC.ini file

The SAPRFC.ini file is referenced by components of the SAPgui software which must be installed on the PC where SA/ERP is installed.

If there are other applications accessing SAP from the PC, then SAPRFC.ini may already exist. It may be located in the following folder:

```
\Program Files\SAP\FrontEnd\SAPgui\rfcsdk\
```

If the file does not exist, use Notepad or a similar text editor to create the file structure as shown below.



Structure of the saprfc.ini file

The connection to the SAP system can now be tested using the 'sapinfo.exe' program. Use a command line session as shown in the following screen shot.



```
C:\Program Files\SAP\FrontEnd\SAPgui\rfcsdk\bin>sapinfo.exe DEST=MYSERVER

SAP System Information
-----

Destination          susap1_GS0_00
Host                 susap1
System ID            GS0
Database             GS0
DB host              SUSAP1
DB system            ORACLE

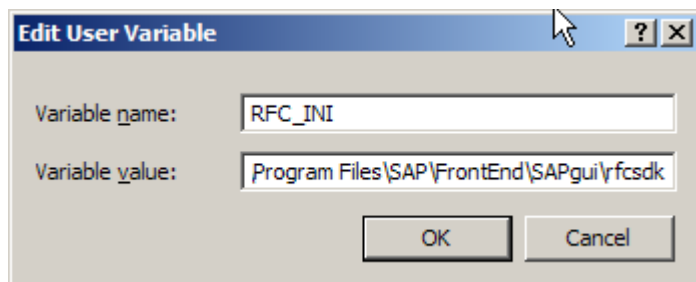
SAP release          620
SAP kernel release  620

RFC Protokoll       011
Characters           1100 <NON UNICODE PCS=1>
Integers             LIT
Floating P.         IE3
SAP machine id      560

Timezone             3600 <Daylight saving time>
```

using 'sapinfo' to check connection to the SAP system

In order to use the SAPRFC.ini from any RFCSDK application, the file needs to be registered as a system variable. From the Windows Control panel, select 'System', then on the 'Advanced' tab click 'Environment Variables' and create a new variable as shown in the next screen shot.

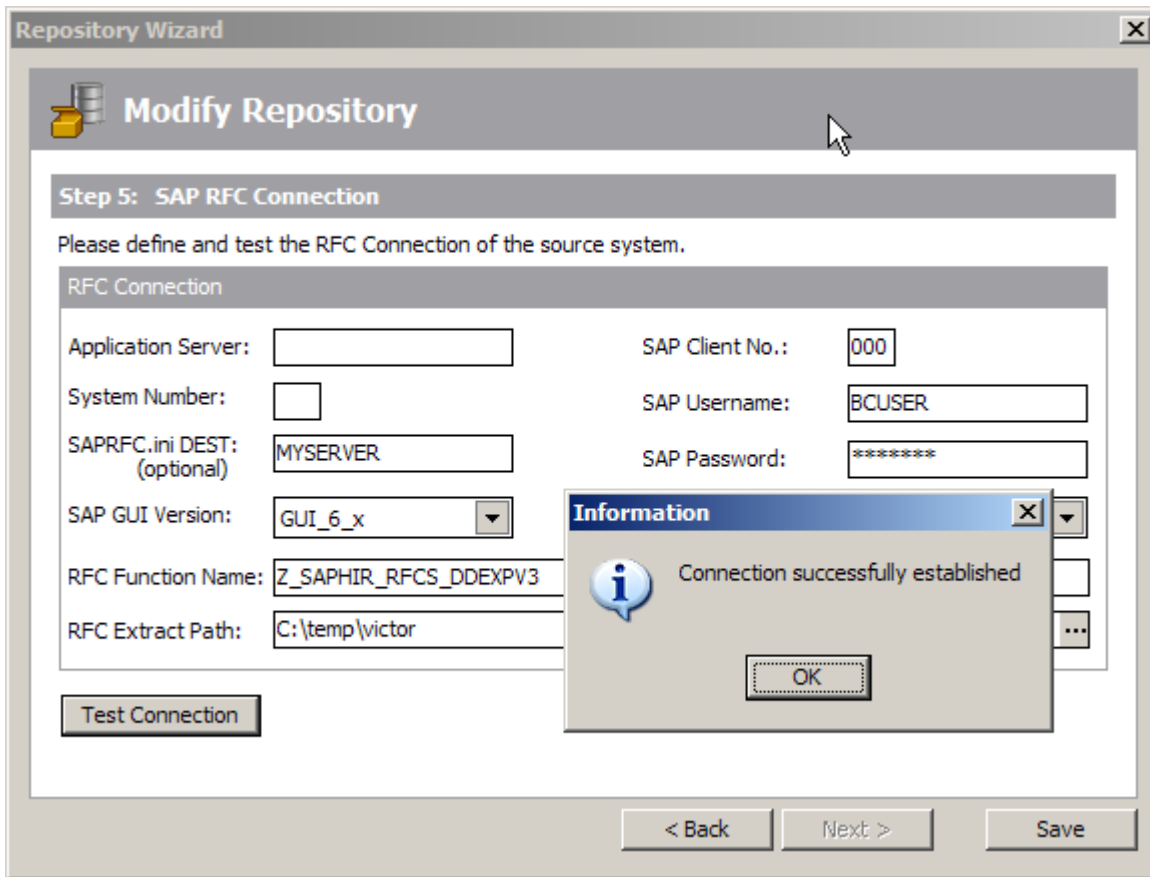


Creating the RFC\_INI Environment Variable

## Using SAPRFC.ini from SA/ERP

To use SAPRFC.ini with SA/ERP, enter the required SAP 'Destination' name into the 'SAPRFC.ini DEST' field on the SA/ERP RFC Connection form. There is no need to enter an Application Server or System Number. Clicking the 'Text Connection' button should then establish a connection with the appropriate SAP system (see screen shot below).

For full details of how to use SAPRFC.ini see the SAP 'RFCSDK Guide'. This manual describes all the possible parameters for inclusion in the SAPRFC.ini file.



Using the SAPRFC.ini Destination to connect to SAP

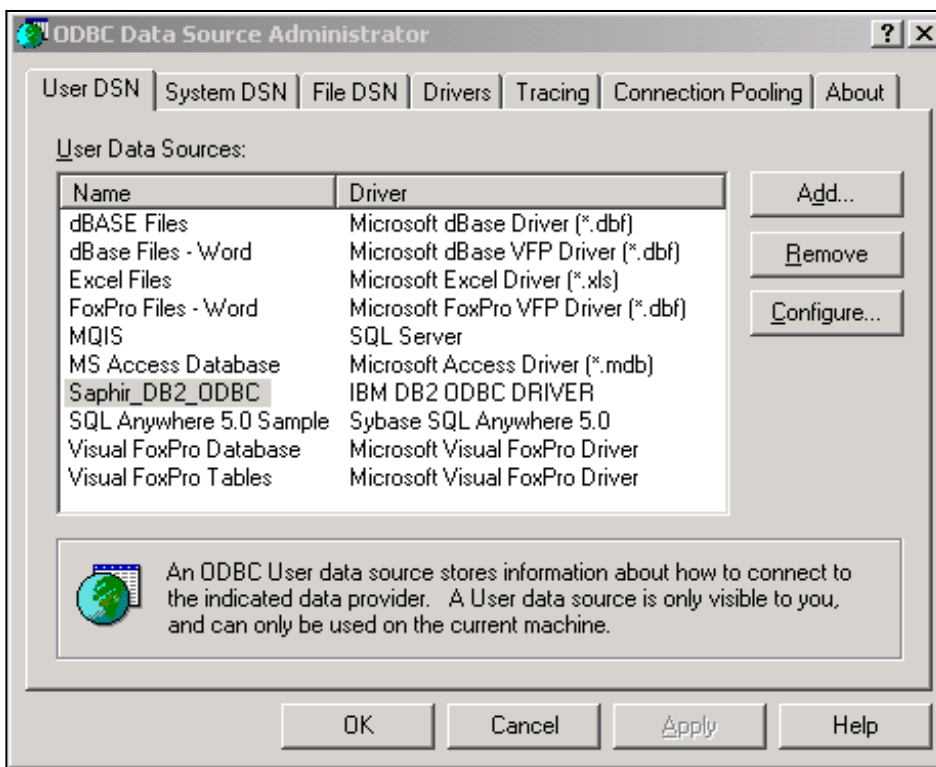


# Applying a patch to the DB2 ODBC driver

*Describes how to apply a patch to the IBM DB2 ODBC driver*

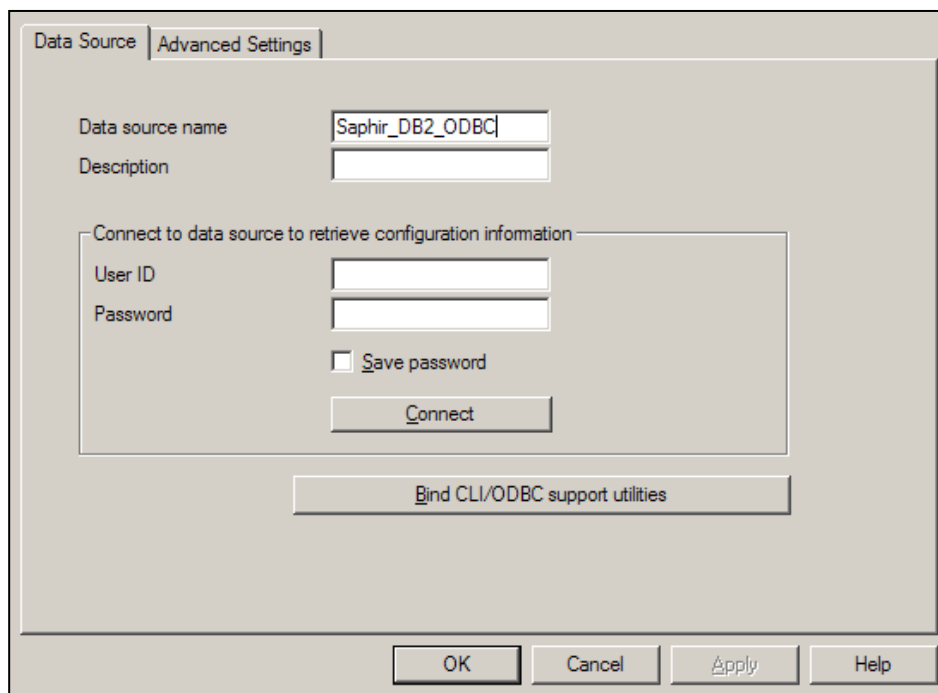
Saphir requires a patch to be made for each DB2 ODBC connection used. This patch is a workaround for a problem with the IBM DB2 ODBC driver where a SQL query that returns an empty result set can cause the application to crash.

To apply this patch, start the ODBC Data Source Administrator, and then choose the required DB2 datasource:

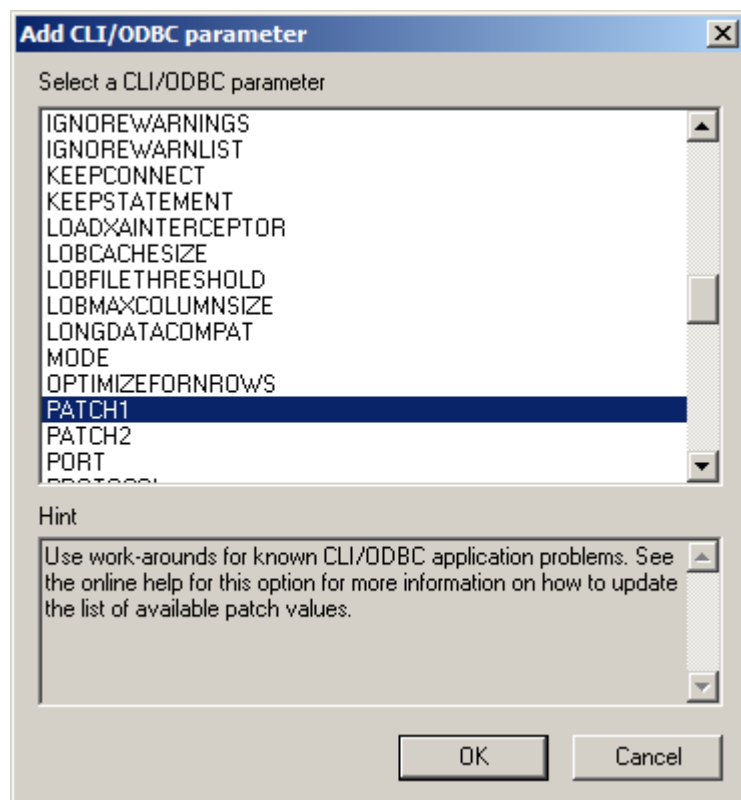


ODBC Administrator

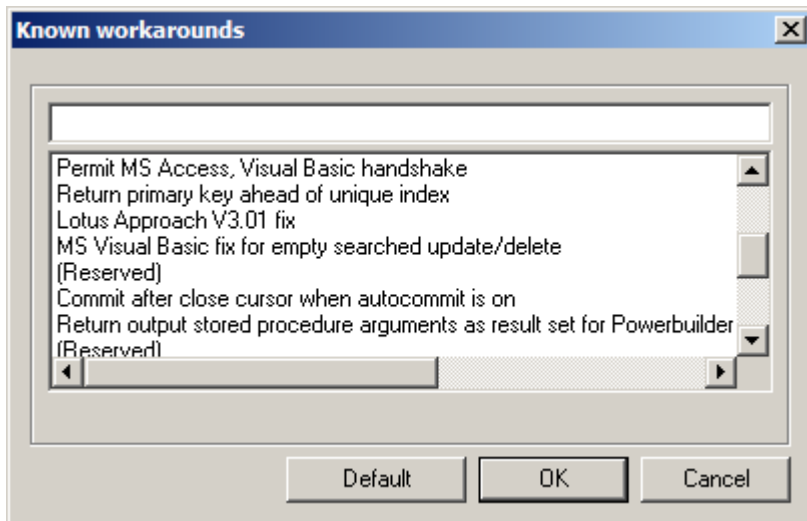
Now Click the 'Configure' button...



...and then click the 'Advanced Settings' tab. From this tab, select the 'Add' button.



Scroll down to the 'PATCH1' entry and Click the 'OK' button.



This displays the 'Known workarounds' form. Scroll down to 'Ms Visual Basic fix for empty update/delete' and click the 'OL' button.

This returns control to the 'Advanced Settings' tab. Click the 'OK' button to complete the process.

**Important Note:** This Patch must be applied to each DB2 database being accessed via ODBC from SA/ERP. This includes the ERP database itself if the database is being accessed via this method.

# Index

- Application Hierarchy, 56
- Databases
  - communication with, 6
- DB2, 8
  - ODBC Driver patch, 7, 72
- EnterpriseOne
  - XML files, 30
- Exporting to third party tools, 57
- J.D.Edwards EnterpriseOne
  - Extracting Metadata, 45
  - Versions supported, 4
- Metadata
  - browsing, 49
- Oracle, 8
- PeopleSoft Enterprise
  - Extracting Metadata, 41
  - Versions supported, 4
- Repository Maintenance, 16
- Repository Manager, 10
- SAP
  - ABAP Function, 59
  - Business Warehouse (BW)
  - Versions supported, 4
  - Connecting, 17
  - Extracting Metadata, 36
  - Extraction Method
    - Choosing, 17
    - RFC Connection Method, 18, 24
    - RFCs
    - Extracting Metadata with, 17
    - Versions supported, 4
- Saphir
  - .ini file, 66
  - Installation, 9
  - Manuals, 4
  - Setup, 5
- Saphir database
  - creating, 8
- Saphir Repository
  - Opening, 35
- SAPRFC.ini, 69
- Siebel
  - Versions supported, 4
- SQL Anywhere, 8
- SQL Server, 8
- Starting Saphir, 9
- Subject Areas, 54
- Sybase, 8
- System and resource requirements, 6