Collibra

ERP/CRM Integrator

Getting Started Guide

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Collibra

ERP/CRM Integrator Getting Started Guide

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What's new

Getting Started

- Connect to SAP using the ABAP method.
- Update connection to Dynamics AX 2012.
- Update the details of the ABAP functions used by ERP/CRM Integrator to extract metadata.
- Update ERP/CRM Integratorsettings for XLSX files.
- Update installation of SAP GUI libraries.

Introduction

An overview of the ERP/CRM Integrator product and the Enterprise Applications it supports

ERP/CRM Integrator, is a metadata exploration tool for enterprise applications like SAP, Salesforce, PeopleSoft, Microsoft Dynamics and Oracle E-Business Suite.ERP/CRM Integrator 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 ERP/CRM Integrator, how to extract and manipulate the ERP metadata, and gives an overview of the main product features.

Please refer to the ‘ERP/CRM Integrator User Guide’ for full details on all product features.

How does ERP/CRM Integrator work?

Using the ERP/CRM Integrator product involves two distinct stages; the extraction of metadata from the chosen environment and then the exploration of that extracted metadata. The metadata extraction stage is performed by attaching to the 'source' package (for example 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 ERP/CRM Integrator Repository. This is a set of tables in a relational database where the various extracted objects (for example tables, relationships, indexes...) are stored. A range of popular RDBMS' can be used for the Repository. Once the metadata is extracted, the second stage of ERP/CRM Integrator usage comes into effect: the browsing of the metadata.

The browsing stage provides the real value of the ERP/CRM Integrator 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 ERP/CRM Integrator address?

ERP/CRM Integrator supports the following Enterprise Applications:

- SAP version 3.1 and above
- SAP Business Warehouse (BW) version 2.2 and above
- PeopleSoft Enterprise applications from Version 8 and above
- J.D.Edwards EnterpriseOne Xe and above
- Siebel version 6.5 and above
- Oracle E-Business Suite version 11 and above
- Salesforce version Winter 14 and above
- Microsoft Dynamics AX 2012 R3 and above
- SuccessFactors

ERP/CRM Integrator also has the capability to extract metadata from other packaged applications not listed above. This involves a small amount of research and scripting work to locate the required metadata in the desired system. Please contact your ERP/CRM Integrator representative for more details of this capability.

ERP/CRM Integrator manual set

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

- Getting Started Guide (this manual): Use this manual for details of product installation and an overview of ERP/CRM Integrator features
- User Guide: Describes all of the ERP/CRM Integrator functions in detail
- ERP/CRM Integrator Task Automation Guide: Describes how to automate many of the ERP/CRM Integrator functions.

In addition, the ERP/CRM Integrator Documentation folder contains an XSD file that defines the format of the Generic XML export available in the product. See the ERP/CRM Integrator User Guide for more details.

Chapter 2

Installation

How to install and configure the ERP/CRM Integrator software, ready for metadata extraction

The ERP/CRM Integrator installation process requires a number of steps to be performed, in addition to the actual 'setup' of the ERP/CRM Integrator 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.

ERP/CRM Integrator setup tasks

- Check system and resource requirements. Ensure that your system meets the minimum requirements necessary to install and run ERP/CRM Integrator. There may also be additional personnel and hardware/software resources required that you need to assemble before starting the installation. See ‘System Requirements’ below for more information.
- Create a database for storing the ERP/CRM Integrator metadata. ERP/CRM Integrator uses a range of RDBMS types to instantiate a database where the extracted metadata is stored. See ‘Creating the ERP/CRM Integrator database’ below for more information.
- Install ERP/CRM Integrator. See ‘Installing ERP/CRM Integrator’ below for more information.
- Configure the software. There are a series of configuration tasks that must be performed to allow ERP/CRM Integrator to talk to the ERP/CRM Integrator repository. See ‘Using the Repository Manager to configure ERP/CRM Integrator’ 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 the sections below on connecting to your chosen Enterprise Application.

ERP/CRM Integrator 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 ERP/CRM Integrator communicates with the RDBMS. See ‘How ERP/CRM Integrator communicates with databases’ below for more information on this, including the required software components.

System requirements

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

- A minimum of 8 Gigabytes of RAM
- 100 Megabytes of hard disk space for the ERP/CRM Integrator Software
- A Windows Operating System with a version under current Microsoft support

- The appropriate client connectivity software (for example Oracle Net) for connection to the ERP/CRM Integrator Repository database and (unless ABAP extraction is to be used for SAP) the Enterprise Application database. See also the section 'How ERP/CRM Integrator communicates with databases' below.
- Where ERP/CRM Integrator is being used with SAP or SAP BW and the user wants to have control of running the extraction of metadata from the SAP system, the SAP GUI client software needs to be installed on the PC, if the metadata is to be extracted from SAP via RFC/ABAP.

  > **Note** The ABAP Function Modules provided with ERP/CRM Integrator can be run independently of the product. In this case, SAP GUI would not be required on the PC. (See Appendix A for more details.)

- It will be necessary to install the SAP GUI for Windows 7.4 or higher if the connection to SAP is to be made via the RFC Netweaver method:

See 'Entering the SAP RFC connection settings' for more details on the RFC Netweaver connection method.

> **Note**
> - SAP GUI has a set of Security settings that may need to be adjusted to permit the data files created by ERP/CRM Integrator to be written without an acknowledgment for each file. See 'Appendix E – SAP GUI Security Settings' for details of these settings.
> - It is important to have the correct SAP GUI Libraries installed for successful connection to an SAP system. See 'Appendix F – Getting the correct SAP GUI Libraries installed' for more information

Resource requirements

A full ERP/CRM Integrator 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 ERP/CRM Integrator.

- A database for storing the extracted metadata. You may need to contact a Database Administrator (DBA) to create a new database for the ERP/CRM Integrator Repository, and to grant appropriate access rights to that database. ERP/CRM Integrator can also use a SQLite database. SQLite is an open source RDBMS that is embedded in the ERP/CRM Integrator software.

- Access to the Enterprise Application. ERP/CRM Integrator 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 ERP/CRM Integrator communicates with databases

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

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

The only exception to this is:

- Where ERP/CRM Integrator 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 Module, not by a SQL connection.
- Where ERP/CRM Integrator is being used with a Salesforce system. In this case, there is no need for a connection to the Salesforce database, as the extraction of metadata is performed using the salesforce API.
- Where ERP/CRM Integrator is being used with a Microsoft Dynamics AX 2012 system. In this case, there is no need for a connection to the Dynamics AX 2012 database, as the extraction of metadata is performed using the Metadata API.

ERP/CRM Integrator uses Microsoft ActiveX Data Objects (ADO) to record the connection properties used to communicate with databases. (Note: this does not apply to the SQLite database type).

The table below shows the recommended ADO Providers and versions that are required for each of the RDBMS types ERP/CRM Integrator supports.

Database	ADO Provider
Oracle	Oracle Provider for OLE DB - Version 8.1.7 or later
Microsoft SQL Server	Microsoft OLE DB Provider for SQL Server - Version 8.1 or later
IBM DB2	IBM OLEDB Provider for DB2
Sybase SQL Anywhere	SQL Anywhere OLEDB Provider

Note ERP/CRM Integrator is available in both 32-bit and 64-bit versions. Matching database drivers will be required for communicating with the database (i.e. 32-bit drivers for the 32-bit ERP/CRM Integrator and 64-bit drivers for the 64-bit ERP/CRM Integrator).

Creating the ERP/CRM Integrator database

The ERP/CRM Integrator Repository is a set of database tables for storing the extracted SAP, PeopleSoft Enterprise, J.D. Edwards EnterpriseOne (formerly J.D. Edwards OneWorld), Oracle E-Business Suite, Siebel, Salesforce and Microsoft Dynamics AX 2012 metadata. It will be necessary to create a new database to store this information.

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

Note Each ERP/CRM Integrator repository requires a separate database or schema.

To create the ERP/CRM Integrator database

1. Decide on the target RDBMS in which the ERP/CRM Integrator repository is to be established. This can be Oracle, Microsoft SQL Server (version 7 or later),, SQL Anywhere or SQLite.
2. Create a new database in the chosen RDBMS.
   - For Oracle: The database should be a minimum of 3 Gigabytes with auto extend (a large SAP repository with multiple languages could be 5 Gigabytes). For the undo

  tablespace, use the ORACLE default (with default Oracle extents).
  - For SQL Server: Place the database and Transaction Log on different physical devices. Make the database 3 Gigabytes and the Transaction Log 100MB.
  - For SQL Anywhere: Create a new database for the ERP/CRM Integrator Repository.
  - For SQLite: ERP/CRM Integrator can create this database type as part of the repository configuration process.

Database user requirements

A Database User is required for the ERP/CRM Integrator database. This must have Table Owner permissions so that the various objects (tables, constraints, ...) that are required in the ERP/CRM Integrator database can be created when the ERP/CRM Integrator repository setup process is run.

Where more than one ERP/CRM Integrator license is to be used to access the same ERP/CRM Integrator Repository, each ERP/CRM Integrator license in this group must use the same Database User (the Table Owner).

Installing ERP/CRM Integrator

The ERP/CRM Integrator Setup program controls the installation process.

To install ERP/CRM Integrator locate the ERP/CRM Integrator setup file and run this program.

Follow the instructions of the ERP/CRM Integrator Setup program through installation.

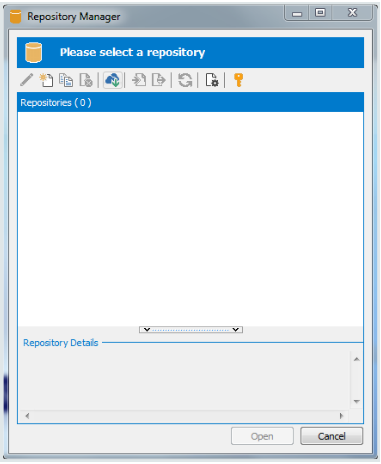
Starting ERP/CRM Integrator for the first time

The first time ERP/CRM Integrator is run you may be prompted to provide licensing details. The exact screen displayed will depend upon which ERP/CRM Integrator version you have purchased.

ERP/CRM Integrator then displays the Repository Manager.

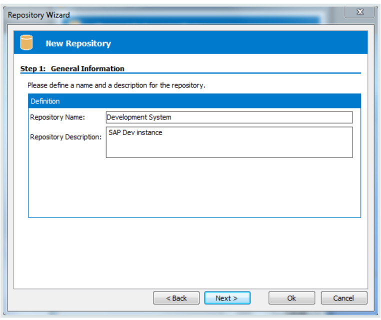
Using the Repository Manager to configure ERP/CRM Integrator

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

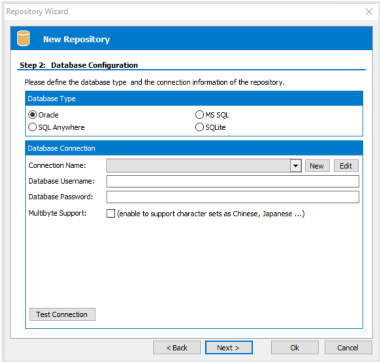


To Configure a new ERP/CRM Integrator repository

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.

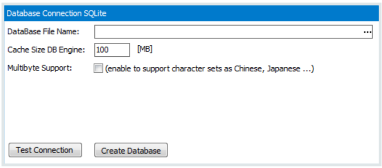


Specify a name in the Repository Name field, and optionally a Repository Description. Click the Next button to display the Step 2 form.



Select the Radio Button that corresponds to the Database Type being used to host the ERP/CRM Integrator Repository. The Database Connection properties in the lower half of the screen will change depending on the Database Type selected.

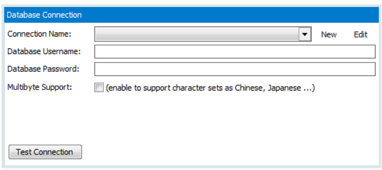
For a SQLite database, the following Database Connection properties are displayed:



Specify a location for the SQLite database file in the Database File Name field. Then click the 'Create Database' button to create the database. Note that this creates not only the database but the ERP/CRM Integrator repository tables within that database.

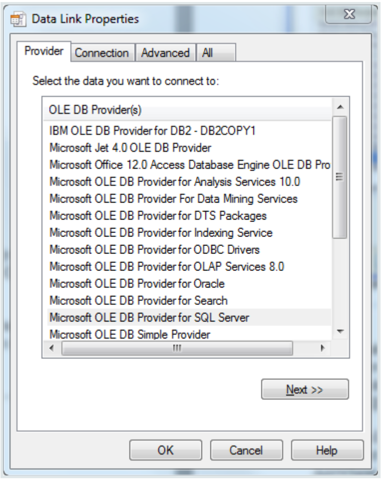
Click the 'Next' button to display the Repository Wizard Step 3 form (see below).

For all other database types, the following Database Connection properties are displayed:

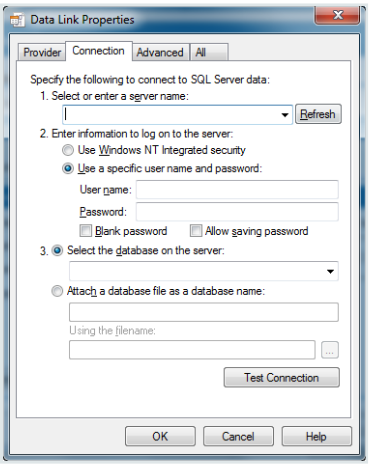


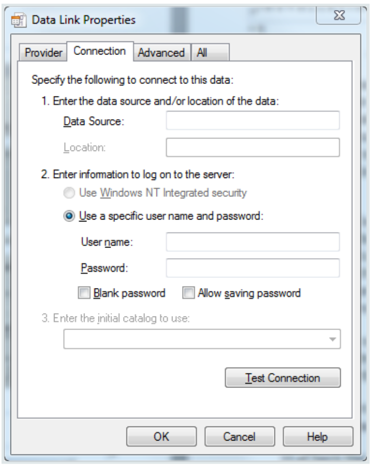
1. The Database Alias dropdown list shows all the existing ADO connections previously configured. If this is a new ERP/CRM Integrator installation, it will be necessary to create a new connection. Click on the 'New' button to the right of the drop down to begin this process.
2. The 'Edit Connection Definition'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

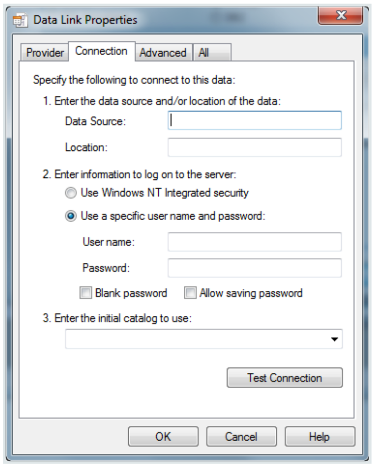
ADO Data Link Properties form is then displayed.



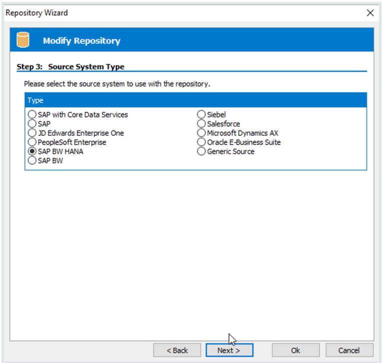
3. If the database connection being created is Oracle, select 'Oracle Provider for OLE DB' from the list of Providers. If the database connection being created is SQL Server, select 'Microsoft OLE DB Provider for SQL Server' and for Sybase SQL Anywhere select 'SQL Anywhere OLEDB Provider'. Now click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







5. 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. For SQL Anywhere, a connection string needs to be specified in order to connect to the database. See Appendix D for details of this connection string.
6. Enter a User name and Password. The User Name is a valid database User-id with owner access rights to the ERP/CRM Integrator Repository. Alternatively, leave these fields blank and enter the User Name and Password in the Repository Wizard form. We do not recommend entering the User Name and Password both here and in the Repository Wizard form. Entering the Password here will also require the 'Allow saving password' check box to be selected which has a potential security risk as the password is stored in plain text within the ADO file.
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 the owner username and password for the database.
9. Check the 'Multibyte Support' box if the Repository needs to support Multibyte characters. This will typically be required if the metadata being extracted and stored contains non-western characters.
10. For Microsoft SQL Server, a 'Command Timeout' property may be specified. This indicates the length of time in seconds to allow for a given query to complete (for example 300 seconds). If left empty, the value will be the default for the environment of the PC. It will not normally be necessary to enter a value for this field unless 'timeout' problems are encountered.
11. Click the 'Test Connection' button to ensure that a connection can be established between ERP/CRM Integrator and the specified database.
12. Click the 'Next' button to display the Repository Wizard Step 3 form.



Step 3 is about specifying the type of Enterprise Application that ERP/CRM Integrator 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 (for example Production, Development) and/or Systems (for example SAP, PeopleSoft) may be managed by the same ERP/CRM Integrator installation. The ability to manage multiple ERPs is controlled by the type of ERP/CRM Integrator 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, SAP BW or SAP BW HANA system, see 'Configuring ERP/CRM Integrator 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.
- For a Siebel system, see 'Connecting to Siebel' below.
- For an Oracle EBS system, see 'Connecting to Oracle Enterprise Business Suite' below.
- For a Salesforce system, see 'Connecting to Salesforce' below.
- For a Microsoft Dynamics AX 2012 system, see 'Connecting to Dynamics AX 2012' below.
- For a SuccessFactors system, see 'Connecting to SuccessFactors' below.

To use the Generic Source capability, please contact your ERP/CRM Integrator representative.

Once the Repository Wizard Steps have been completed, when attempting to open the Repository with the ‘Open’ button, ERP/CRM Integrator performs a check on the database to see if the Repository tables exits. If not (or if the Repository was created with an earlier ERP/CRM Integrator version), ERP/CRM Integrator 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.

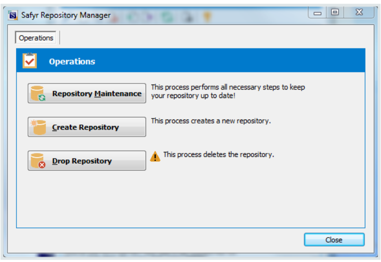
> **Note** For a SQLite-based ERP/CRM Integrator repository, the Repository tables are created as part of the database creation process.

> **Tip** 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 ERP/CRM Integrator repository. The process will appear automatically when configuring a new repository, or when upgrading from an older version of ERP/CRM Integrator.

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



There are three buttons on the form:

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

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

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

Configuring ERP/CRM Integrator to connect to an SAP system

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

- Extract via Direct Database Connection to SAP: 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.
- Extract via ABAP Function Module: Extracting via ABAP uses an ABAP Function Module, supplied with ERP/CRM Integrator, to extract metadata into flat file format, via the SAP Application Layer. ERP/CRM Integrator then takes the flat files and imports the metadata into the ERP/CRM Integrator Repository.

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

> **Note** Extracting via Direct Database Connection to SAP will NOT extract the SAP Attribute definitions, as these are stored in a form not accessible to this connection method. If Attribute Definitions are required, use the ABAP Extraction method.

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 ERP/CRM Integrator database, this is achieved using Microsoft ADO (ActiveX Data Objects).

Connecting to SAP using the ABAP Method

If you have chosen to connect to SAP using the ABAP connection method, then it will be necessary to install a SAP Transport, containing an ABAP Function Module on the SAP Application Server. There are four ABAP Function Modules supplied as Transports to ERP/CRM Integrator customers. These are:

- For an SAP system: /SILWOOD/SAFYR_NONCDS
- For an SAP system with CDS (Core Data Services) features: /SILWOOD/SAFYR_CDS.
- For an SAP BW system: /SILWBW/SAFYR_BW
- For an SAP BW HANA system: /SILWBW/SAFYR_BWHANA

Full details of how to install the ABAP Function Modules are to be found in Appendix A of this manual.

> **Note** ERP/CRM Integrator is supplied with four additional ABAP Function Modules (one for SAP, one for SAP CDS, one for SAP BW and one for SAP BW HANA) that can be used to run the 'main' ABAP Function Modules from within the SAP environment. These may be used to run the extraction process and create text files if it is not possible to access the SAP system via RFC calls. See Appendix A for details of using these Function Modules.

Required Access Rights for the SAP User used by ERP/CRM Integrator

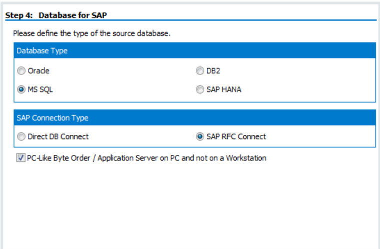
If the extraction of metadata is to be run via ABAP and from within the ERP/CRM Integrator environment then an SAP Username and Password will be required to enable ERP/CRM Integrator to invoke the ABAP Function Module.

This user must be of User Type 'Dialog' or 'Service' and have a security profile which allows RFC access to the ERP/CRM Integrator Function Group created above. The minimum SAP Authorization Objects required are S_RFC and S_GUI.

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

Entering the extraction method choice into ERP/CRM Integrator

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.



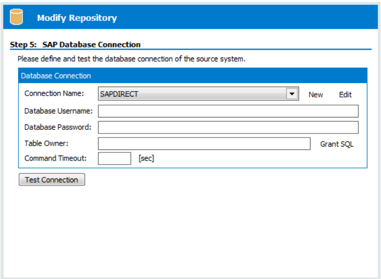
1. Select the radio button which corresponds to the database type on which the SAP system has been installed. Note: The 'Direct DB Connect' method is not available for a HANA based SAP system.
2. For Microsoft SQL Server and DB2, a 'Command Timeout' property may be specified. This indicates the length 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).

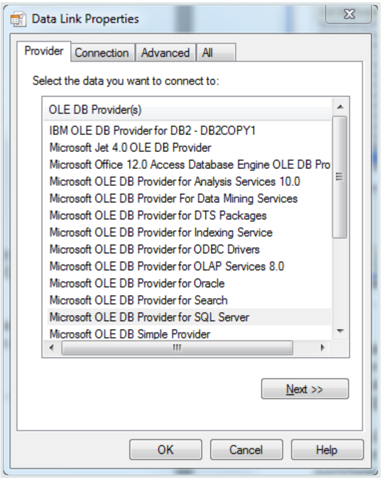
If you have chosen 'SAP RFC Connect', the next form will be Step 5 – SAP RFC Connection (see 'Entering the SAP RFC Connection settings' below).

Entering the SAP database connection settings

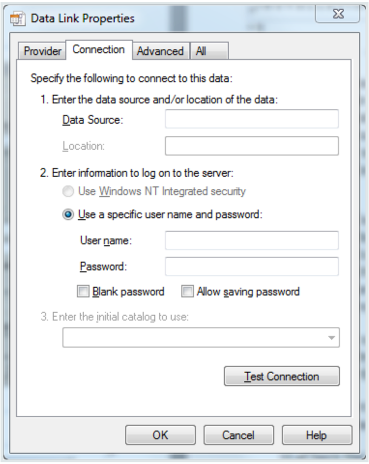


Step 5 of the Repository Wizard records the information required for ERP/CRM Integrator to connect directly to the SAP database.

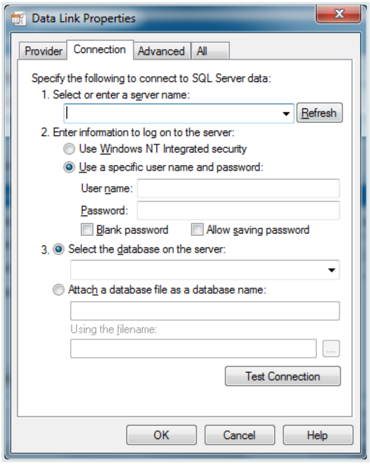
1. The Database Alias dropdown list shows all the existing ADO connections previously configured. If this is a new ERP/CRM Integrator installation, it will be necessary to create a new connection to the SAP database. Click on the 'New' button to the right of the drop down to begin this process.
2. The '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.



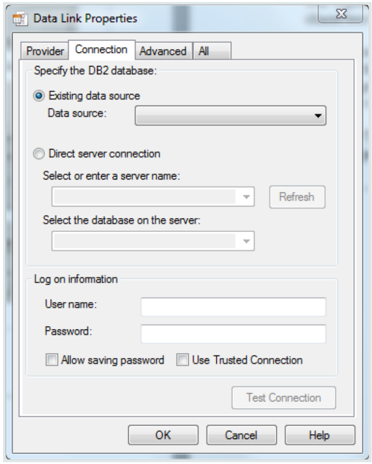
3. If the database connection being created is Oracle, select 'Oracle Provider for OLE DB' from the list of Providers. If the database connection being created is SQL Server, select 'Microsoft OLE DB Provider for SQL Server'. For DB2 select the 'IBM OLEDB Provider for DB2'. Now click the 'Next' button.
4. The Data Link Properties Connection tab is now displayed. The available fields on this tab will be dependent on the chosen Provider. The layouts for Oracle, SQL Server and DB2 are shown below.



Data Link Properties 'Connection' tab for Oracle...



...for SQL Server...



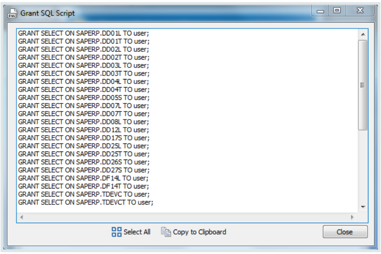
...and for DB2

5. 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. If the database is DB2, enter the database name in the 'Data Source'.
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 an 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 (for example 'SAPR3').

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

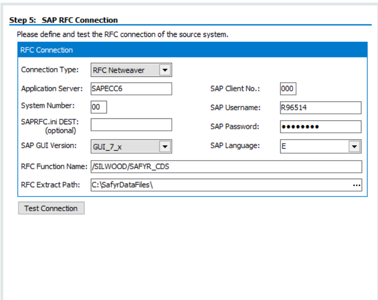
The ‘Grant SQL’ button will generate the appropriate SQL ‘Grant’ statements for each of the tables that ERP/CRM Integrator need to access in the SAP database. You can use this feature to help your SAP DBA set up a database user for use in ERP/CRM Integrator.

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



Now turn to ‘Opening a ERP/CRM Integrator Repository’ below.

Entering the SAP RFC connection settings



Step 5 of the Repository Wizard records the information required for ERP/CRM Integrator to connect to the SAP system using SAP Remote Function Calls (RFCs). If the ABAP Function Module is being run external to the ERP/CRM Integrator environment (see Appendix A) then there is no need to enter this information.

1. Select the Connection Type from the drop-down list. This can be:
    - RFC Netweaver. We would recommend this for all new ERP/CRM Integrator repositories.
    - RFC Classic. This will be the default for any ERP/CRM Integrator repository already configured prior to ERP/CRM Integrator 6.3.9. RFC Classic is no longer an SAP supported method.
2. Enter the Application Server name of the desired SAP system, the SAP Client Number, the System Number and the Username and Password.

3. 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).
4. Use the SAP GUI Version drop down to choose the SAP GUI version of 4.x, 6.x or 7.x.
5. 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 SafyrSettings.xlsx file. (see Appendix B for details).
6. Specify the name of the ABAP Function Module to be invoked by the RFC calls.
7. Enter a path for the location of the RFC text files.

Click the Test Connection' button to have ERP/CRM Integrator 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 ERP/CRM Integrator Repository' below.

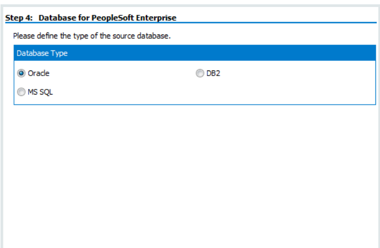
Connecting to PeopleSoft Enterprise

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 ERP/CRM Integrator database, this is achieved using Microsoft ADO (ActiveX Data Objects).

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.

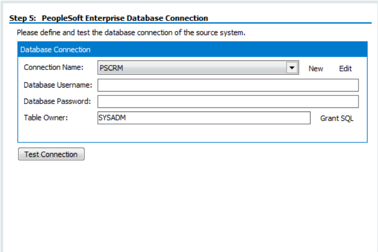


Select the radio button which corresponds to the database type on which the PeopleSoft system has been installed.

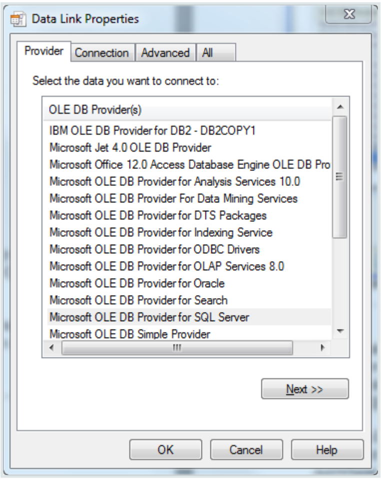
Click the 'Next' button.

Entering the PeopleSoft database connection settings

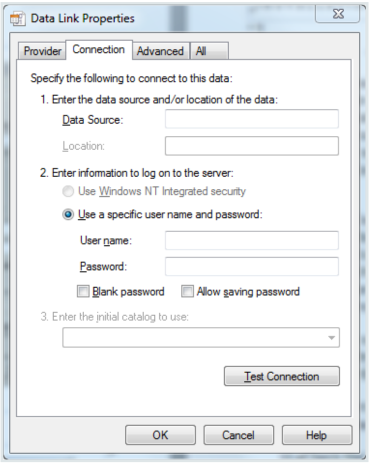
Step 5 of the Repository Wizard records the information required for ERP/CRM Integrator to connect to the PeopleSoft database.



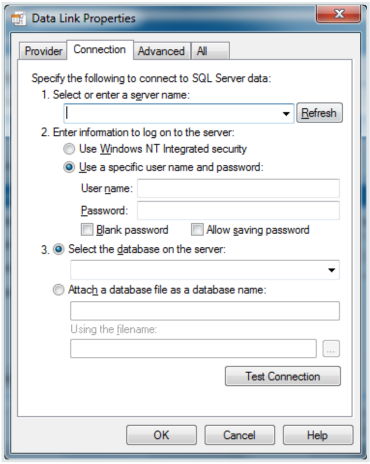
1. The Database Alias dropdown list shows all the existing ADO connections previously configured. If this is a new ERP/CRM Integrator installation, it will be necessary to create a new connection to the PeopleSoft database. Click on the 'New' button to the right of the drop down to begin this process.
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.



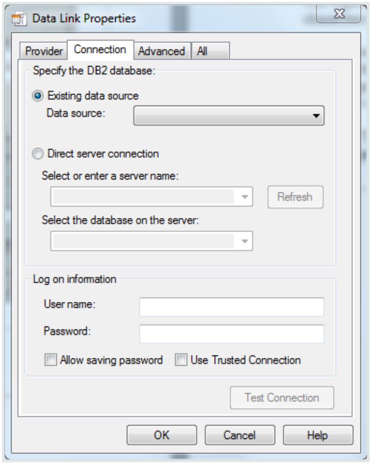
3. If the database connection being created is Oracle, select 'Oracle Provider for OLE DB' from the list of Providers. If the database connection being created is SQL Server, select 'Microsoft OLE DB Provider for SQL Server'. For DB2 select the 'IBM OLEDB Provider for DB2'. Now click the 'Next' button.
4. The Data Link Properties Connection tab is now displayed. The available fields on this tab will be dependent on the chosen Provider. The layouts for Oracle, SQL Server and DB2 are shown below.



Data Link Properties ‘Connection’ tab for Oracle...



...for SQL Server...



...and for DB2

5. 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. If the database is DB2, enter the database name in the ‘Data Source’.
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.

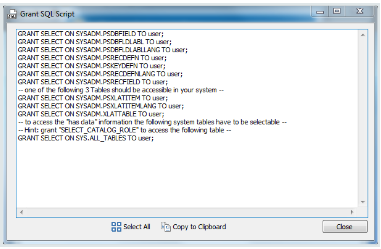
8. If not previously entered in the ADO configuration, enter a username and password for the database.
9. If necessary, enter the PeopleSoft Table Owner.
10. For Microsoft SQL Server and DB2, a 'Command Timeout' property may be specified. This indicates the length of time to allow for a given query to complete. The default is 210 seconds. It will not normally be necessary to enter a value for this field unless 'timeout' problems are encountered.

Click the Test Connection' button to have ERP/CRM Integrator 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 ERP/CRM Integrator 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 ERP/CRM Integrator Repository' below.



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. ERP/CRM Integrator 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 ERP/CRM Integrator database, the connection to the EnterpriseOne database is achieved using Microsoft ADO (ActiveX Data Objects). The tables that ERP/CRM Integrator accesses are EnterpriseOne Data Dictionary tables (in particular, F9202, F9210 and F00165).

To produce the XML Files from the EnterpriseOne system

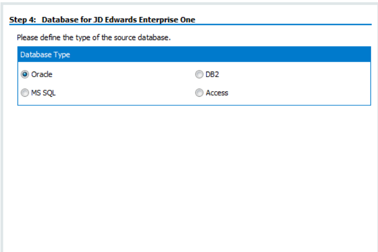
1. From the J.D.Edwards EnterpriseOne Explorer, select Foundation and then Report Writer.
2. From the Menu, select Batch Versions.
3. Key R91400A into the Batch Application field and press Find. There is only one version, select it by double clicking.

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.



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

Click the ‘Next’ button.

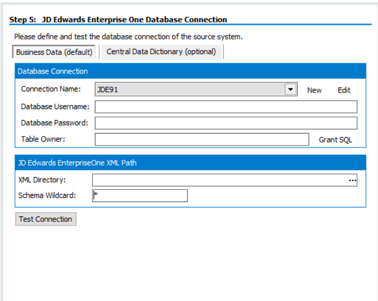
Entering the EnterpriseOne database connection settings

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

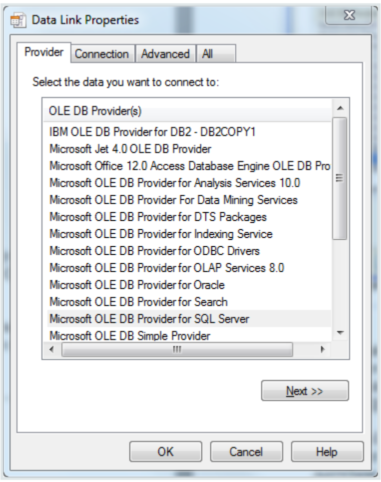
ERP/CRM Integrator extracts metadata from EnterpriseOne tables: F9202, F9210 and F00165. These tables can sometimes be located in more than one EnterpriseOne schema.

Typically F9202 and F9210 would be in a 'Data Dictionary' schema and F00165 in a 'Business Data' schema. To accommodate this, the ERP/CRM Integrator connection settings allow for two database connections to be made. If all the tables are accessible in one schema, it is only necessary to enter setting in the 'Business Data (default)' tab (see the screenshot below). If the tables are split between schemas then the settings on the 'Central Data Dictionary' tab should also be supplied.

In both cases the method for configuring the database connection is as described below.



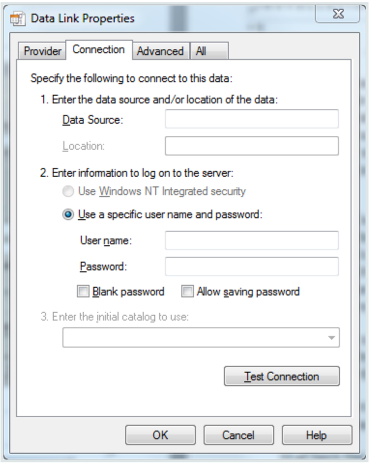
1. The Database Alias dropdown list shows all the existing ADO connections previously configured. If this is a new ERP/CRM Integrator installation, it will be necessary to create a new connection to the EnterpriseOne database. Click on the 'New' button to the right of the drop down to begin this process.
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.



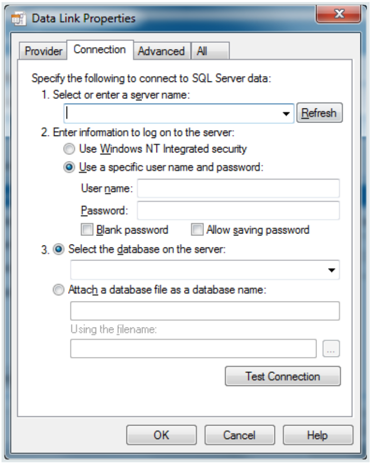
3. If the database connection being created is Oracle, select 'Oracle Provider for OLE DB' from the list of Providers. If the database connection being created is SQL Server, select

‘Microsoft OLE DB Provider for SQL Server’. For DB2 select the ‘IBM OLEDB Provider for DB2’. Now click the ‘Next’ button.

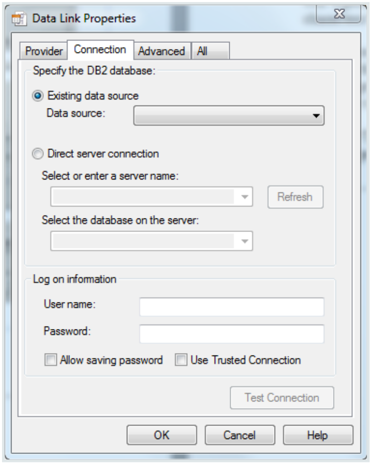
4. The Data Link Properties Connection tab is now displayed. The available fields on this tab will be dependent on the chosen Provider. The layouts for Oracle, SQL Server and DB2 are shown below.



Data Link Properties ‘Connection’ tab for Oracle...



...for SQL Server...



...and for DB2

5. 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. If the database is DB2, enter the database name in the ‘Data Source’.
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. 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. 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.
12. Enter a Schema Wildcard. As JDEdwards has tables stored under different schemas, it may be necessary to enter a partial schema name in order to access the row count information stored in the system tables with different schema owners. For example, this might be JDE* to accommodate schema names such as JDEDATA900, JDEDD900, JDECTL90. The default setting for this is '*', meaning 'all schemas'.

Click the 'Test Connection' button to have ERP/CRM Integrator 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 ERP/CRM Integrator Repository' below.

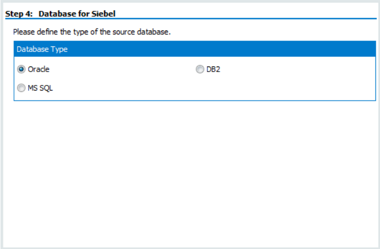
Connecting to Siebel

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

As with the connection to the ERP/CRM Integrator database, this is achieved using Microsoft ADO (ActiveX Data Objects).

Choosing the Siebel database type

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

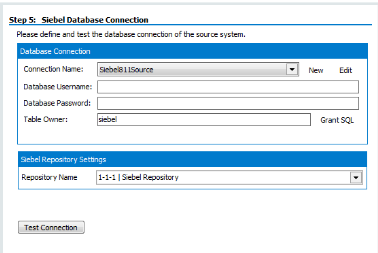


Select the radio button which corresponds to the database type on which the Siebel system has been installed.

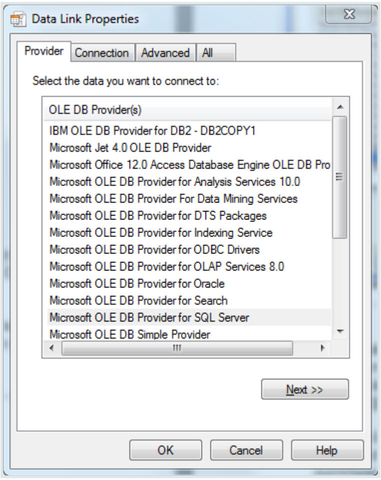
Click the 'Next' button.

Entering the Siebel database connection settings

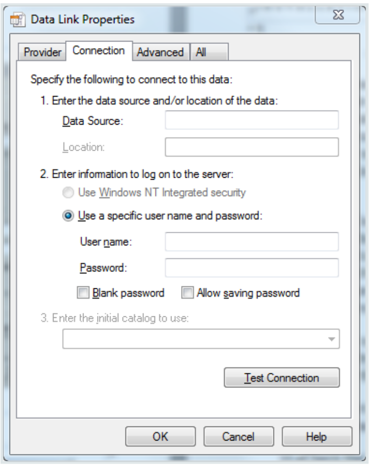
Step 5 of the Repository Wizard records the information required for ERP/CRM Integrator to connect to the Siebel database.



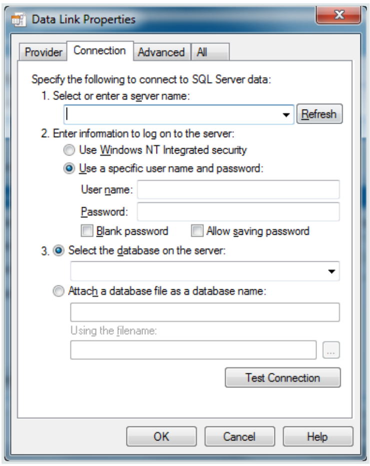
1. The Database Alias dropdown list shows all the existing ADO connections previously configured. If this is a new ERP/CRM Integrator installation, it will be necessary to create a new connection to the Siebel database. Click on the 'New' button to the right of the drop down to begin this process.
2. 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.



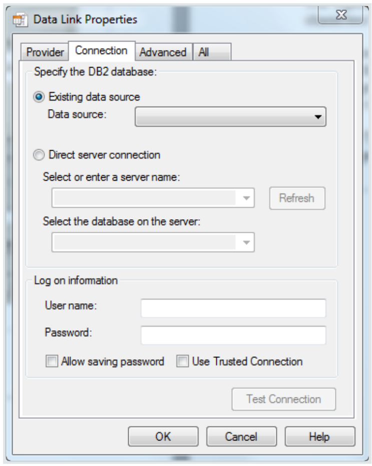
3. If the database connection being created is Oracle, select ‘Oracle Provider for OLE DB’ from the list of Providers. If the database connection being created is SQL Server, select ‘Microsoft OLE DB Provider for SQL Server’. For DB2 select the ‘IBM OLEDB Provider for DB2’. Now click the ‘Next’ button.
4. The Data Link Properties Connection tab is now displayed. The available fields on this tab will be dependent on the chosen Provider. The layouts for Oracle, SQL Server and DB2 are shown below.



Data Link Properties ‘Connection’ tab for Oracle...



...for SQL Server...



...and for DB2

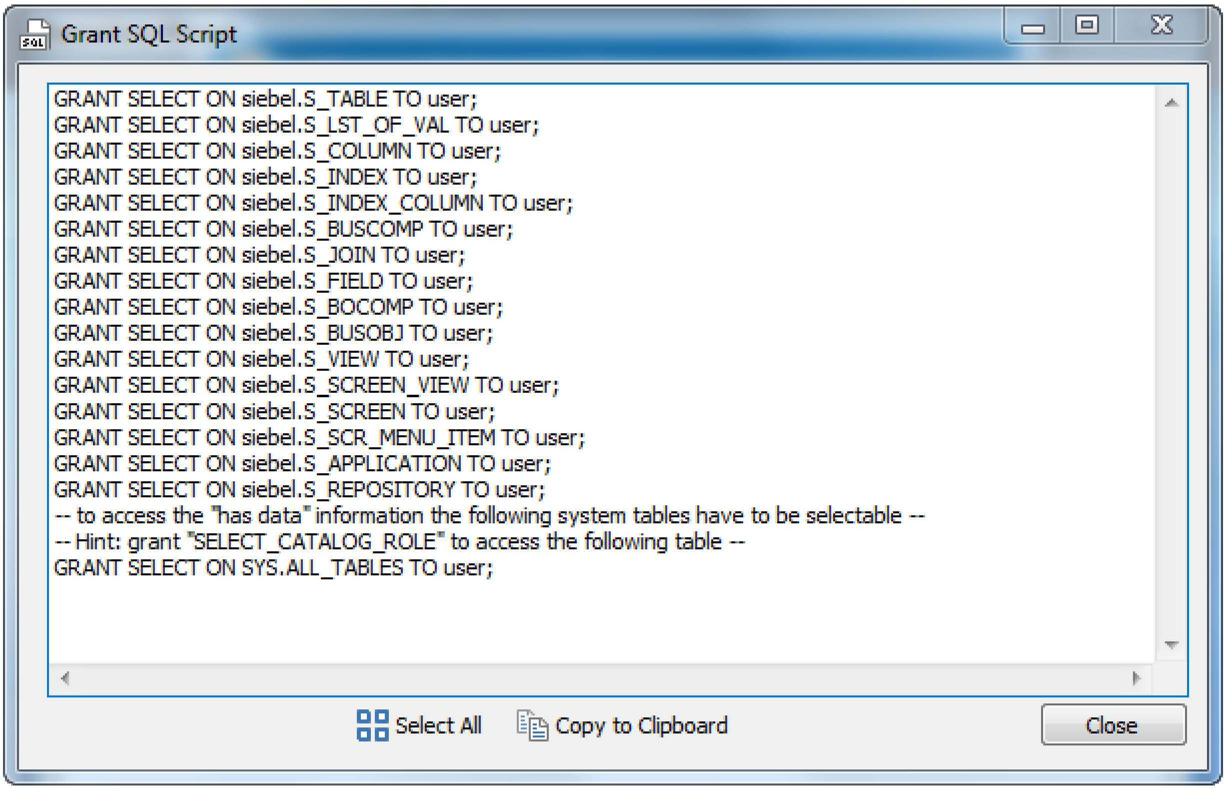
5. For an Oracle database, in the 'Data Source' field, enter the connection string for connecting to the Oracle database. This will normally be the string used in the TNSNAMES file for connection to the database. For a SQL Server database, in the 'Select or enter a server name' field, enter or select the name of the Server where the database is located. If the database is DB2, enter the database name in the 'Data Source'.
6. Enter a User name and Password. The User Name is a valid database User-id with 'select' access rights to the Siebel 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 Siebel 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 Siebel 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 Siebel Table Owner.
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. Using the Repository drop down list, select the Siebel Repository from which the extraction is to be performed. (Note: this is the Siebel Repository, not the ERP/CRM Integrator Repository).

Click the 'Test Connection' button to have ERP/CRM Integrator 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 Siebel tables that ERP/CRM Integrator need to access in the Siebel database. You can use this feature to help your Siebel 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 ERP/CRM Integrator Repository' below.



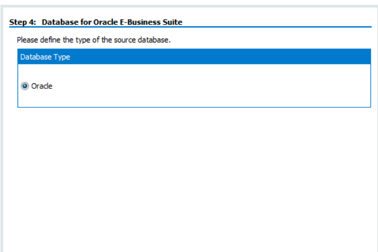
Connecting to Oracle Enterprise Business Suite

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

As with the connection to the ERP/CRM Integrator database, this is achieved using Microsoft ADO (ActiveX Data Objects).

Choosing the EBS database type

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

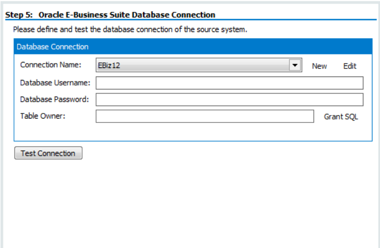


In the case of EBS, there is only one possible source database type and this is pre-set as Oracle.

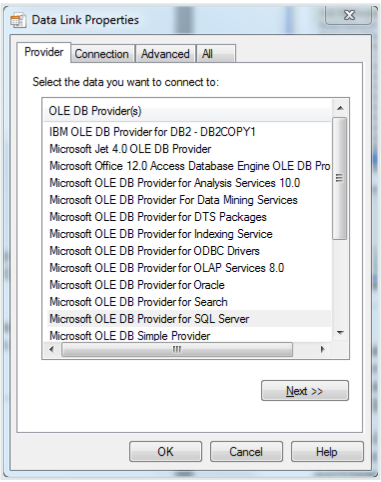
Click the ‘Next’ button.

Entering the EBS database connection settings

Step 5 of the Repository Wizard records the information required for ERP/CRM Integrator to connect to the Oracle EBS database.

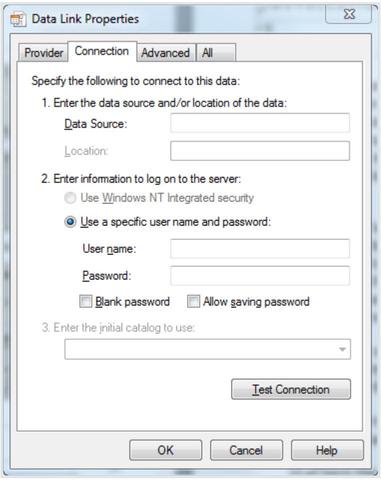


1. The Database Alias dropdown list shows all the existing ADO connections previously configured. If this is a new ERP/CRM Integrator installation, it will be necessary to create a new connection to the EBS database. Click on the ‘New’ button to the right of the drop down to begin this process.
2. The ‘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.



3. Select ‘Oracle Provider for OLE DB’ from the list of Providers. Now click the ‘Next’ button.

4. The Data Link Properties Connection tab is now displayed.



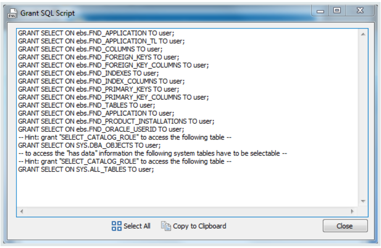
5. In the ‘Data Source’ field, enter the connection string for connecting to the Oracle database. This will normally be the string used in the TNSNAMES file for connection to the database.
6. Enter a User name and Password. The User Name is a valid database User-id with ‘select’ access rights to the Oracle EBS 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 EBS 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 an EBS Application Username and Password).
8. If not previously entered in the ADO configuration, enter a username and password for the database. If necessary, enter the EBS database Table Owner.

Click the ‘Test Connection’ button to have ERP/CRM Integrator 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 EBS tables that ERP/CRM Integrator need to access in the EBS database. You can use this feature to help your EBS 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 ERP/CRM Integrator Repository’ below.

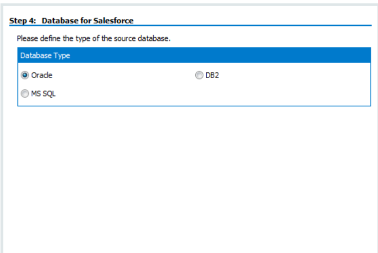


Connecting to Salesforce

If you have chosen to connect to a Salesforce system, then it will be necessary to configure a connection to the Salesforce system where the required metadata is stored. ERP/CRM Integrator extracts the metadata from Salesforce using the Salesforce Enterprise WSDL API. You will need details of how to connect to the Salesforce system and these are described below.

Choosing the Salesforce database type

Now navigate to Step 4 of the Repository Wizard. This is where you record the Database type being used by the Salesforce system. The primary purpose of making this choice is so ERP/CRM Integrator knows what data types to use when making an export of metadata into third-party data modelling and other tools.

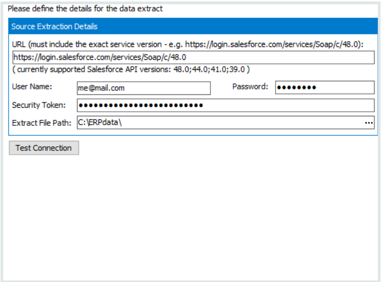


Select the radio button which corresponds to the database type on which the Salesforce system has been installed

Click the ‘Next’ button.

Entering the Salesforce connection settings

Step 5 of the Repository Wizard records the information required for ERP/CRM Integrator to connect to the Salesforce system.



1. Enter the URL for the connection to the salesforce instance. Note that this will normally need the '/services/Soap/c/' suffix. Please ensure version 52, 48, 44, 41 or 39 of the api is specified. Other versions will not operate correctly with ERP/CRM Integrator. We recommend that you use version 52.
2. Enter the User Name, Password and Security Token.
3. Enter a path for the location of the extracted text files. In addition to populating the ERP/CRM Integrator repository with the extracted Salesforce metadata, each set of 'objects' (tables, columns, relationships...) is written to a text file in this folder. It would not normally be necessary to use these files. However, they can also be used to rerun the repository population without making a connection to the Salesforce system.

Click the 'Test Connection' button to have ERP/CRM Integrator check that the Salesforce 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 ERP/CRM Integrator Repository' below.

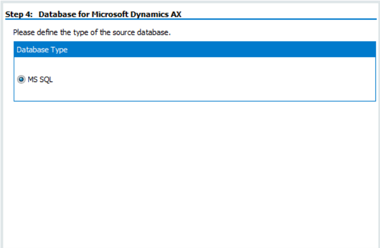
Connecting to Dynamics AX 2012

If you have chosen to connect to a Dynamics AX 2012 system, then it will be necessary to configure a connection to the Dynamics AX system where the required metadata is stored. ERP/CRM Integrator extracts the metadata from a Dynamics using the Dynamics AX Metadata Service API.

In order to connect to the AX Server, the Windows user for the workstation where ERP/CRM Integrator is installed needs to be known to the AX Server Active Directory, and .NET framework 4.0 or higher needs to installed on the workstation.

Choosing the Dynamics AX database type

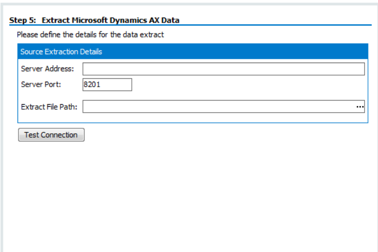
Now navigate to Step 4 of the Repository Wizard. This is where you record the Database type being used by the Dynamics system. This is always SQL Server.



Click the ‘Next’ button.

Entering the Dynamics AX connection settings

Step 5 of the Repository Wizard records the information required for ERP/CRM Integrator to connect to the Dynamics system.



1. Enter the Server Address and Server Port number.
2. Enter a path for the location of the extracted text files. In addition to populating the ERP/CRM Integrator repository with the extracted Dynamics metadata, each set of ‘objects’ (tables, columns, relationships...) is written to a text file in this folder. It would not normally be necessary to use these files.

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

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

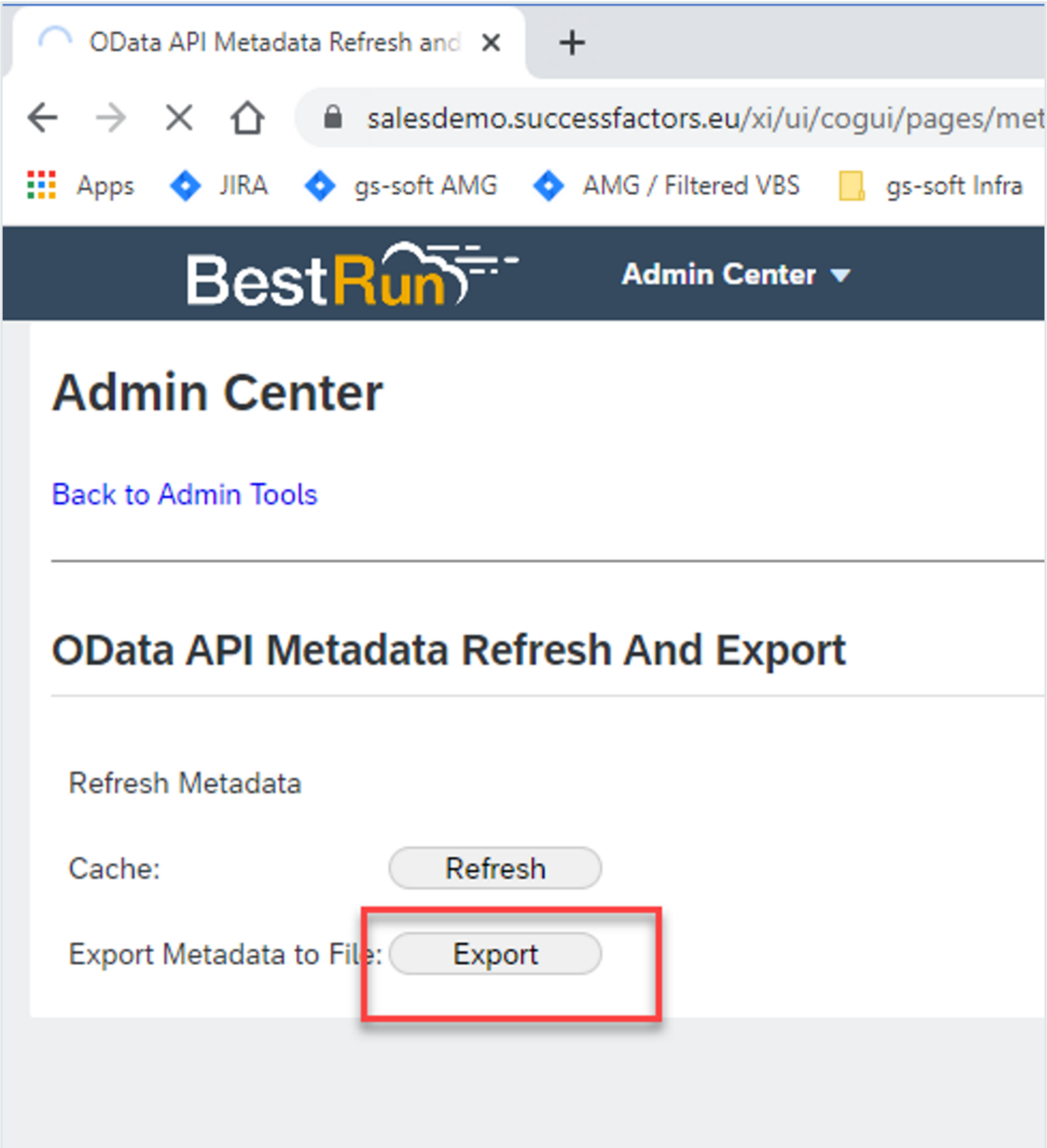
Now turn to ‘Opening a ERP/CRM Integrator Repository’ below.

Connecting to SuccessFactors

ERP/CRM Integrator uses an XML file containing ODATA definitions of SuccessFactors data structures to populate the repository. You will need to generate the XML file from the SuccessFactors system before attempting the extraction of metadata into ERP/CRM Integrator.

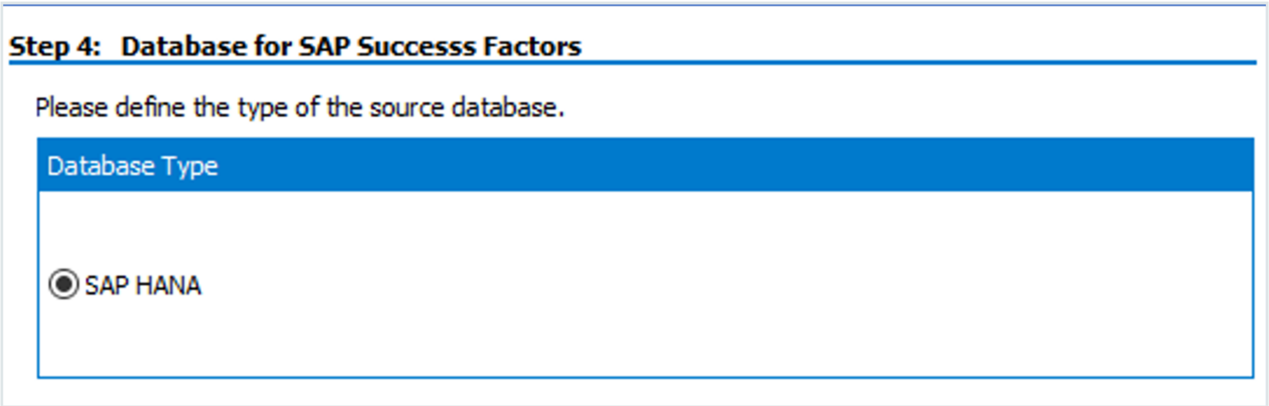
Producing the XML file from the SuccessFactors system

1. Log in to the SuccessFactors system and use the Search feature to search for ‘OData’.
2. From the search result, select ‘OData API Metadata Refresh and Export’.
3. Click the Export button and after the process has completed, locate the generated XML file.
4. If necessary, move the XML file into a convenient location for access by ERP/CRM Integrator.



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 SuccessFactors system.

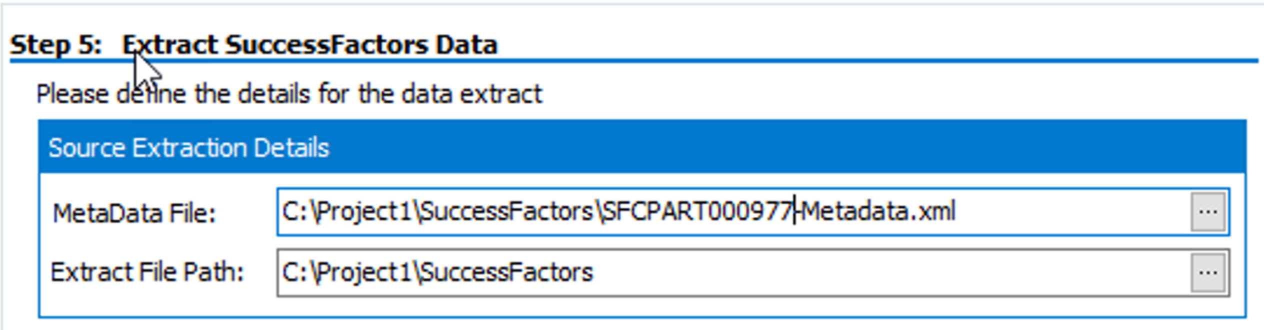


As SuccessFactors is always HANA based, there is no selection required (Note: Other systems addressed by ERP/CRM Integrator (e.g. SAP, PeopleSoft...) do have a choice of RDBMS)

Click the ‘Next’ button.

Entering the SuccessFactors Extraction file details

Step 5 of the Repository Wizard records the location of the XML file created from the SuccessFactors system, and the location of the Extract Files.



1. Enter the location of the XML Metadata file produced from SuccessFactors (see ‘To produce the XML file from the SuccessFactors system’ above).
2. Enter a path for the location of the extracted text files. In addition to populating the ERP/CRM Integrator repository with the extracted SuccessFactors metadata, each set of ‘objects’ (tables, columns, relationships...) is written to a text file in this folder. It would not normally be necessary to use these files. However, they can also be used to rerun the repository population without making a connection to the SuccessFactors system.

Click the ‘Test Connection’ button to have ERP/CRM Integrator check that the database can be accessed using the supplied information.

Click the ‘Ok’ button to save all the settings entered during the Repository Wizard session.

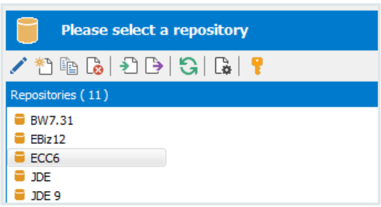
Now turn to ‘Opening a ERP/CRM Integrator Repository’ below.

Opening a ERP/CRM Integrator Repository

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

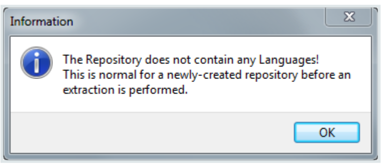
To Open an existing Repository

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



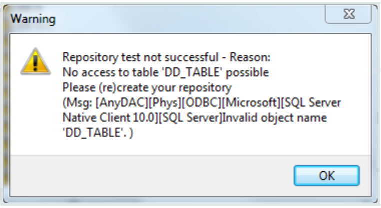
To open a repository, select the required entry from the list and click the ‘Open’ button.

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

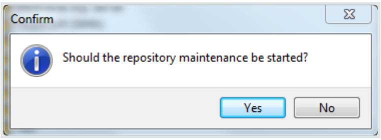


This indicates that there are no data definitions stored in the repository as yet. The population of the repository occurs when you perform an extraction from your chosen Enterprise Application. This is described in the next chapter.

If the database for the repository exists, but the tables and other object required for ERP/CRM Integrator have not yet been created then a warning message will appear.



This is as a result of ERP/CRM Integrator looking for the required tables. Clicking the 'OK' button on this message will display the following:



Clicking the 'Yes' button will then display the Repository maintenance screen to allow the Repository tables to be created. See 'Repository Maintenance' earlier in this chapter for more details of this feature.

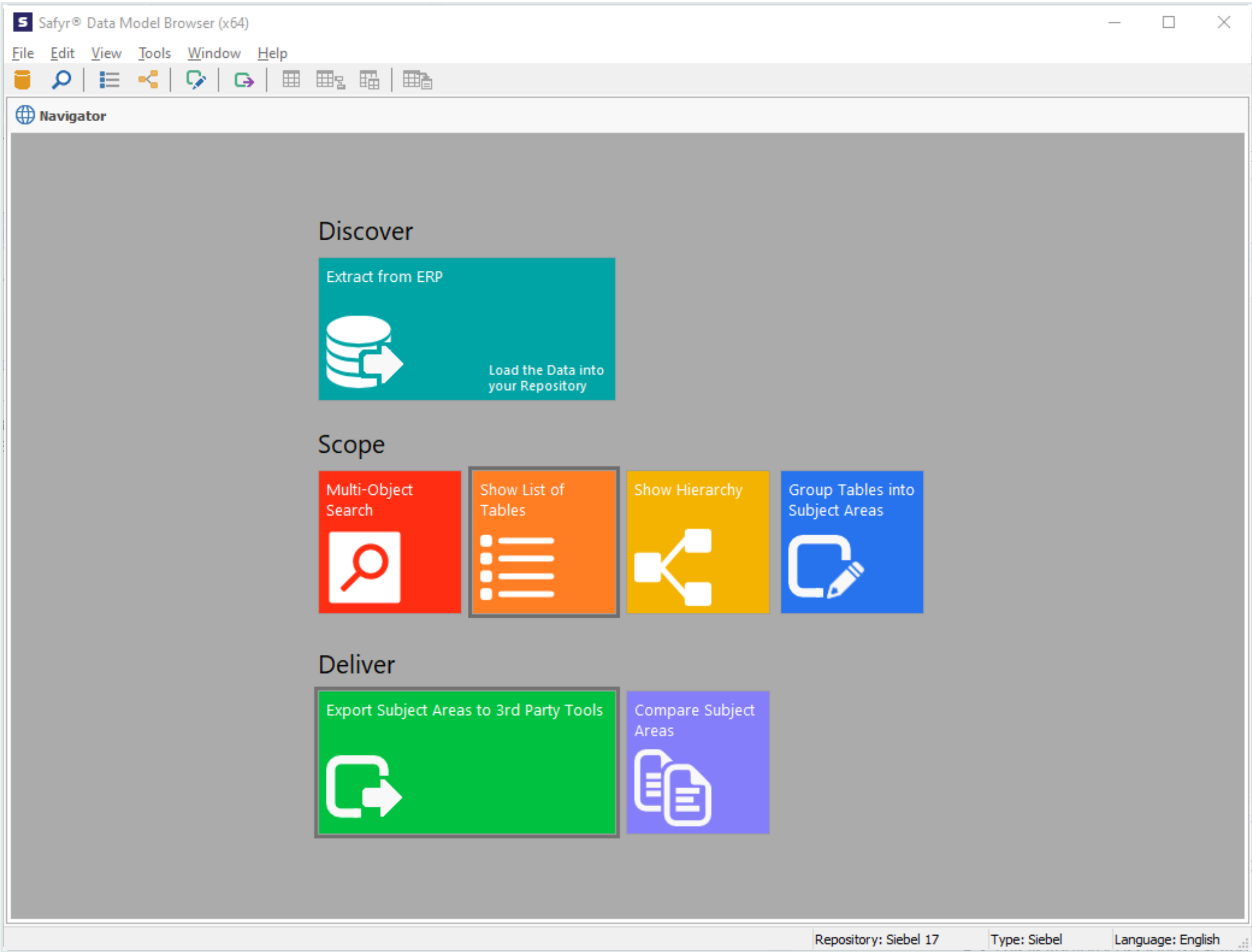
Overview of ERP/CRM Integrator Workflow

What to do next, once the ERP/CRM Integrator software is installed and configured

Having successfully installed and configured ERP/CRM Integrator, the next steps in using the product are available using the main Navigation screen, which is displayed when opening a ERP/CRM Integrator Repository.

ERP/CRM Integrator Navigation screen

The Navigation screen presents a series of clickable 'tiles' which correspond to the three phases involved with using the product effectively. There is an implied 'workflow' in the way the tiles are arranged.



This workflow is composed of three phases: 'Discover, Scope, Deliver'.

- Discover
  - This is the process of extracting the metadata from the 'source' ERP system
- Scope: This area encompasses the main activities of searching and sub-setting tables using ERP/CRM Integrator. There are 4 tiles:
  - Multi-Object Search – a facility for searching across a range of object types
  - Show List of Tables – display the ERP/CRM Integrator Model Overview screen to allow querying on Tables

    - Show Hierarchy – display the Application Hierarchy
    - Group Tables by Subject Area – show the Subject Area editor for grouping tables
- Deliver: This covers the capability for exporting Subject Areas. There are 2 tiles:
    - Export Subject Areas to 3rd party Tools – export Subject Area contents to a range of formats
    - Compare Subject Areas – compare contents of two Subject Areas to determine differences

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

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

Tile Category	Tile	For more details see...
Discover	Extract from ERP	Extracting Metadata
Scope	Multi-Object Search	Multi Object Search
	Show List of Tables	Show List of Tables
	Show Hierarchy	The Application Hierarchy
	Group Tables into Subject Areas	Subject Areas
Deliver	Export Subject Areas to 3rd Party Tools	Exporting to 3rd Party Tools
	Compare Subject Areas	ERP/CRM Integrator User Guide, Comparing metadata

Chapter 4

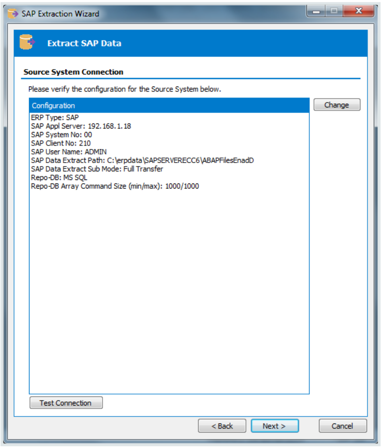
Extracting Metadata

How to extract metadata from your chosen Enterprise Application

Before ERP/CRM Integrator can be used to explore metadata, the Extraction process must be performed to extract metadata from the Enterprise Application. The following sections describe how to achieve this for SAP, PeopleSoft Enterprise, J.D.Edwards EnterpriseOne, Siebel, Oracle EBS, Salesforce, Microsoft Dynamics AX 2012 and SuccessFactors.

Extracting metadata from SAP, SAP BW or SAP BW HANA

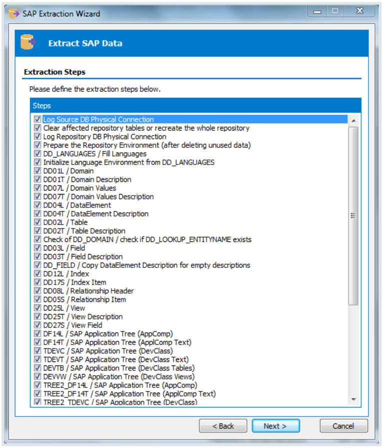
Start the extraction process by selecting the ‘ERP Extract’ option from the ERP/CRM Integrator File menu, or the ‘Extract from ERP’ tile from the Navigation Screen. This will start the SAP Extraction Wizard. Click the ‘Next’ button on the first ‘Extraction Wizard’ form to display the ‘Source System Connection’ form.



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.

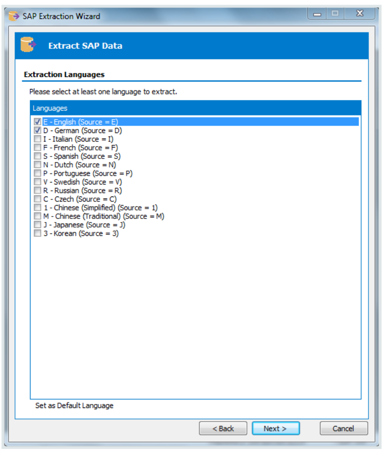
Now click the ‘Next’ button to proceed to the next stage.



This form lists each of the stages involved in extracting metadata from an SAP system. Most steps are checked 'On' and we recommend that you leave this default selection and continue to the next stage. The last two steps are to 'Generate Rules Based relationships;' and 'Generate Extended Relationships'. These describe the process by which ERP/CRM Integrator can be used to add additional relationships for the SAP metadata that are not explicitly defined in the SAP table structures. These options are checked 'Off' by default and we recommend that you only select these options to be 'On' after fully understanding the Extended Relationship generation process which is described in the 'ERP/CRM Integrator User Guide.'

> **Note** The steps for a SAP BW system are different, but again, it is recommended that you leave the default selection of steps. There is no equivalent of the 'Generate Extended relationships' for BW.

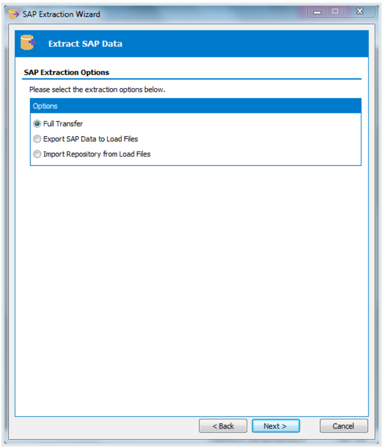
Click the 'Next' button to proceed to the next stage.



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 ERP/CRM Integrator 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 SafyrSettings.xlsx 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.

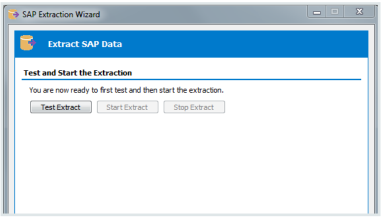


The RFC Connect extraction method extracts metadata from SAP by invoking an SAP ABAP Function Module which creates a series of text files for each of the SAP metadata tables being interrogated. These text files are read by ERP/CRM Integrator and the contents used to load the ERP/CRM Integrator repository 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:

Option	Description
Full Transfer	The metadata is exported to text files and then immediately read into the ERP/CRM Integrator repository

Option	Description
Export SAP Data to Load Files	The metadata is exported to text files only. The ERP/CRM Integrator 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 ERP/CRM Integrator repository

The most likely use of 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.

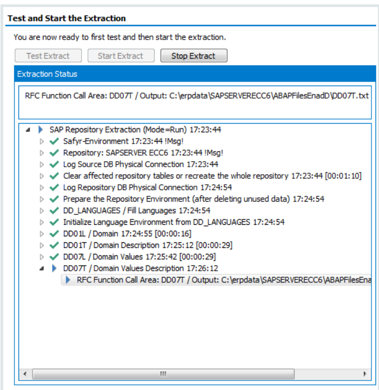


This form is the last stage of the Extraction Wizard process.

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

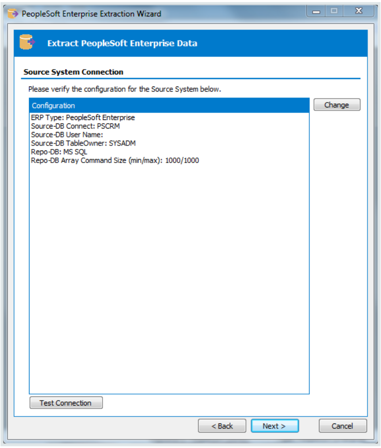
Assuming the 'Test Extract' was successful, click the 'Start Extract' button to begin the full extraction process.

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 ERP/CRM Integrator features for achieving this is provided in the next chapter.



Extracting metadata from PeopleSoft Enterprise

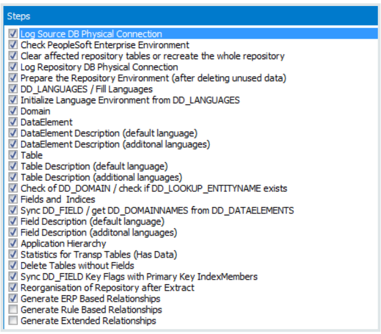
Start the extraction process by selecting the 'ERP Extract' option from the ERP/CRM Integrator File menu, or the 'Extract from ERP' tile from the Navigation Screen. This will start the PeopleSoft Extraction Wizard. Click the 'Next' button on the first 'Extraction Wizard' form to display the 'Source System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



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

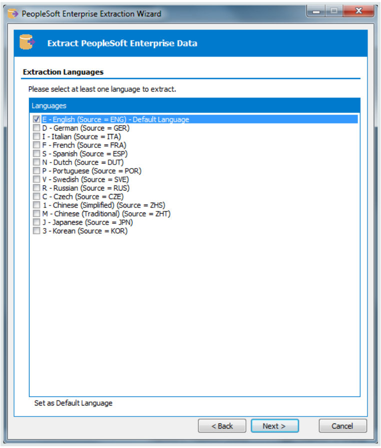
- Click the 'Change' button to further amend the connection parameters
- Click the 'Test Connection' button to verify the connection through to the Application.

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



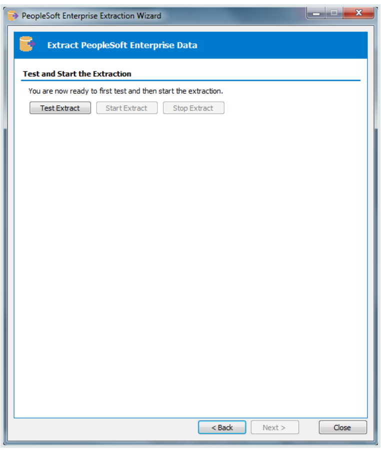
This form lists each of the stages involved in extracting metadata from a PeopleSoft system. The first 25 steps are checked 'On' by default. The 26 th and 27th steps ('Generate Rule Based Relationships' and 'Generate Extended Relationships') can be used to create additional relationships between PeopleSoft tables using user-specified rules and ERP/CRM Integrator inference rules respectively. We recommend that you only select either of the last two options after fully understanding the processes described in Appendix B ('Generating Relationships not found in the ERP') of the 'ERP/CRM Integrator User Guide.'

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



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 SafyrSettings.xlsx. See Appendix B for details of this file.

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



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

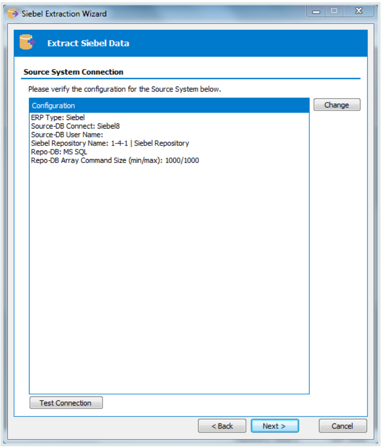
Clicking the 'Test Extract' button causes ERP/CRM Integrator to run a series of queries to ensure that all the objects requested for extraction are available.

Assuming the ‘Test 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 ERP/CRM Integrator features for achieving this is provided in the next chapter.

Extracting metadata from Siebel

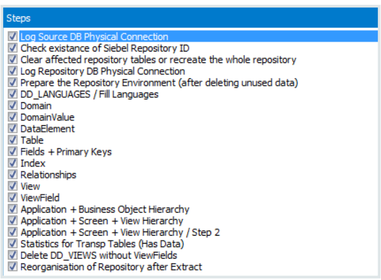
Start the extraction process by selecting the ‘ERP Extract’ option from the ERP/CRM Integrator File menu, or the ‘Extract from ERP’ tile from the Navigation Screen. This will start the Siebel Extraction Wizard. Click the ‘Next’ button on the first ‘Extraction Wizard’ form to display the ‘Source System Connection’ form.



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

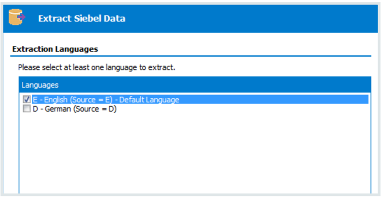
- Click the ‘Change’ button to further amend the connection parameters
- Click the ‘Test Connection’ button to verify the connection through to the Application.

Now click the ‘Next’ button to proceed to the next stage.



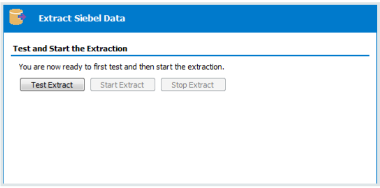
This form lists each of the stages involved in extracting metadata from a Siebel system. The 22 steps are checked 'On' by default and we recommend that you leave this selection and continue to the next stage.

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



On the Extraction Languages form, check the language code you require.

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



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

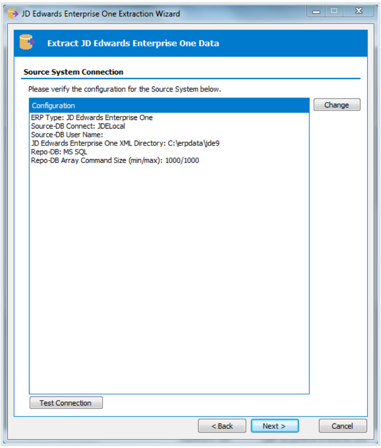
Clicking the 'Test Extract' button causes ERP/CRM Integrator to run a series of queries to ensure that all the objects requested for extraction are available.

Assuming the 'Test 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 ERP/CRM Integrator features for achieving this is provided in the next chapter.

Extracting metadata from J.D.Edwards EnterpriseOne

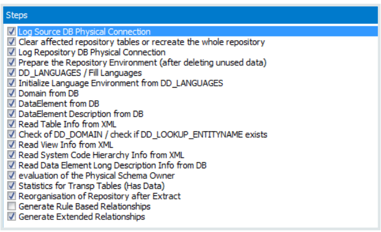
Start the extraction process by selecting the 'ERP Extract' option from the ERP/CRM Integrator File menu, or the 'Extract from ERP' tile from the Navigation Screen. This will start the EnterpriseOne Extraction Wizard. Click the ‘Next’ button on the first ‘Extraction Wizard’ form to display the ‘Source System Connection’ form.



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.

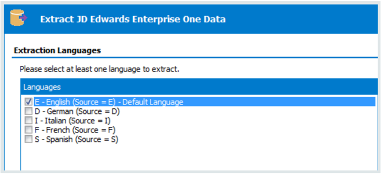
Now click the ‘Next’ button to proceed to the next stage.



This form lists each of the stages involved in extracting metadata from an EnterpriseOne system.

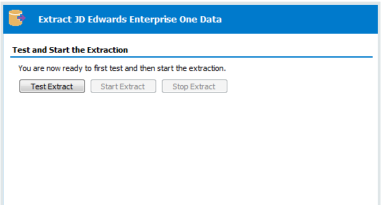
The 18th and 19th steps (Generate Rule Based Relationships and ‘Generate Extended Relationships’) can be used to create additional relationships between JDEdwards tables using user-specified rules and ERP/CRM Integrator inference rules respectively. We recommend that you only select either of the last two options after fully understanding the processes described in Appendix B (‘Generating Relationships not found in the ERP’) of the ‘ERP/CRM Integrator User Guide.’

Click the ‘Next’ button to proceed to the next stage.



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 SafyrSettings.xlsx file. See Appendix B for details.

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



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

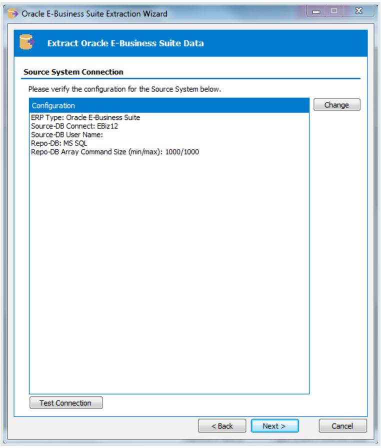
Clicking the ‘Test Extract’ button causes ERP/CRM Integrator to run a series of queries to ensure that all the objects requested for extraction are available.

Assuming the ‘Test 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 ERP/CRM Integrator features for achieving this is provided in the next chapter.

Extracting metadata from Oracle EBS

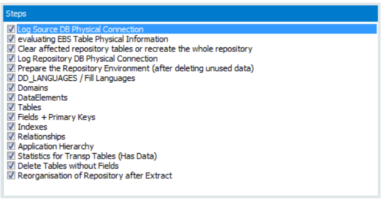
Start the extraction process by selecting the ‘ERP Extract’ option from the ERP/CRM Integrator File menu, or the ‘Extract from ERP’ tile from the Navigation Screen. This will start the EBS Extraction Wizard. Click the ‘Next’ button on the first ‘Extraction Wizard’ form to display the ‘Source System Connection’ form.



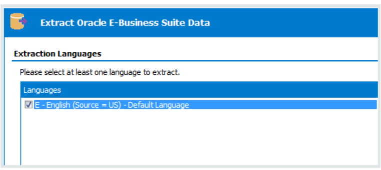
This form shows a summary of the connection parameters, previously supplied when completing the Repository Wizard. You can:

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

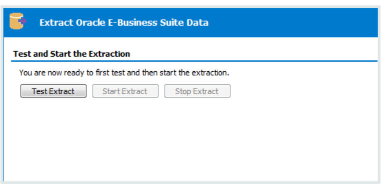
Now click the ‘Next’ button to proceed to the next stage.



This form lists each of the stages involved in extracting metadata from an EBS system. The 16 steps are checked ‘On’ and we recommend that you leave this selection and then click the ‘Next’ button to proceed to the next stage.



The extraction of metadata from EBS will always be in US English. Click the ‘Next’ button to proceed to the next stage of the Extraction Wizard.



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

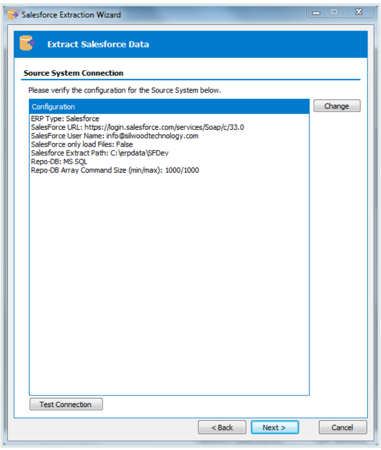
Clicking the ‘Test Extract’ button causes ERP/CRM Integrator to run a series of queries to ensure that all the objects requested for extraction are available.

Assuming the ‘Test 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 ERP/CRM Integrator features for achieving this is provided in the next chapter.

Extracting metadata from Salesforce

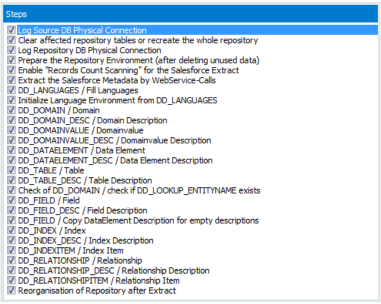
Start the extraction process by selecting the ‘ERP Extract’ option from the ERP/CRM Integrator File menu, or the ‘Extract from ERP’ tile from the Navigation Screen. This will start the Salesforce Extraction Wizard. Click the ‘Next’ button on the first ‘Extraction Wizard’ form to display the ‘Source System Connection’ form.



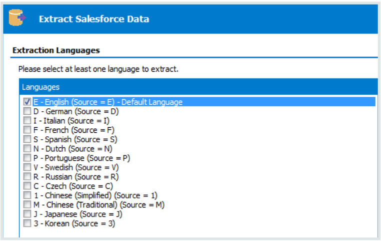
This form shows a summary of the connection parameters, previously supplied when completing the Repository Wizard. You can:

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

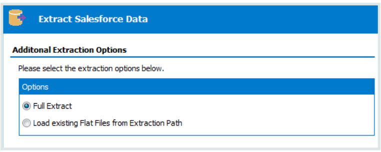
Now click the ‘Next’ button to proceed to the next stage.



This form lists each of the stages involved in extracting metadata from a Salesforce system. The 27 steps are checked ‘On’ and we recommend that you leave this selection and then click the ‘Next’ button to proceed to the next stage.



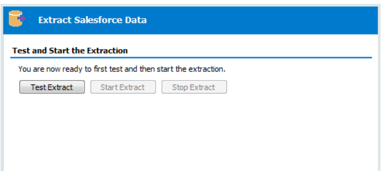
The extraction of metadata from Salesforce will normally be in English. Click the ‘Next’ button to proceed to the next stage of the Extraction Wizard.



The extraction of metadata from Salesforce not only populates the ERP/CRM Integrator repository, but also creates a series of text files. These text files can be used to rerun the extraction, or to allow population of a different ERP/CRM Integrator instance based upon these files.

The normal selection for this would therefore be ‘Full Extract’.

Click the ‘Next button to move to the next extract step.



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

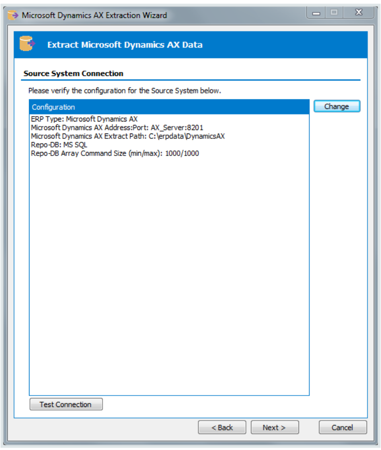
Clicking the ‘Test Extract’ button causes ERP/CRM Integrator to run a series of queries to ensure that all the objects requested for extraction are available.

Assuming the ‘Test 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 ERP/CRM Integrator features for achieving this is provided in the next chapter.

Extracting metadata from Microsoft Dynamics AX 2012

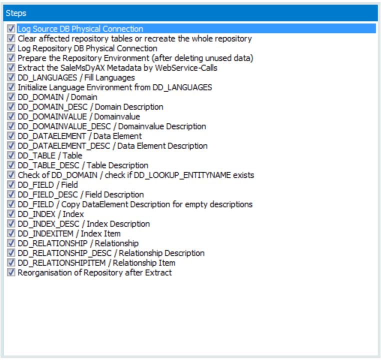
Start the extraction process by selecting the ‘ERP Extract’ option from the ERP/CRM Integrator File menu, or the ‘Extract from ERP’ tile from the Navigation Screen. This will start the Dynamics AX Extraction Wizard. Click the ‘Next’ button on the first ‘Extraction Wizard’ form to display the ‘Source System Connection’ form.



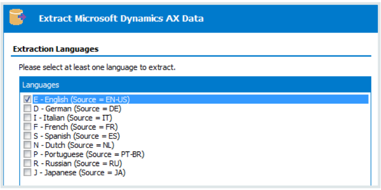
This form shows a summary of the connection parameters, previously supplied when completing the Repository Wizard. You can:

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

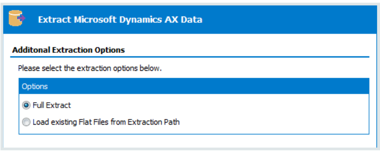
Now click the ‘Next’ button to proceed to the next stage.



This form lists each of the stages involved in extracting metadata from a Dynamics AX system. The 28 steps are checked 'On' and we recommend that you leave this selection and then click the 'Next' button to proceed to the next stage.



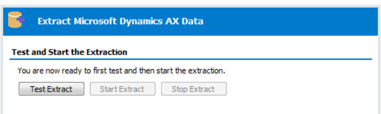
The extraction of metadata from Dynamics will normally be in English. Click the 'Next' button to proceed to the next stage of the Extraction Wizard.



The extraction of metadata from Dynamics not only populates the ERP/CRM Integrator repository, but also creates a series of text files. These text files can be used to rerun the extraction, or to allow population of a different ERP/CRM Integrator instance based upon these files.

The normal selection for this would therefore be 'Full Extract'.

Click the 'Next button to move to the next extract step.



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

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

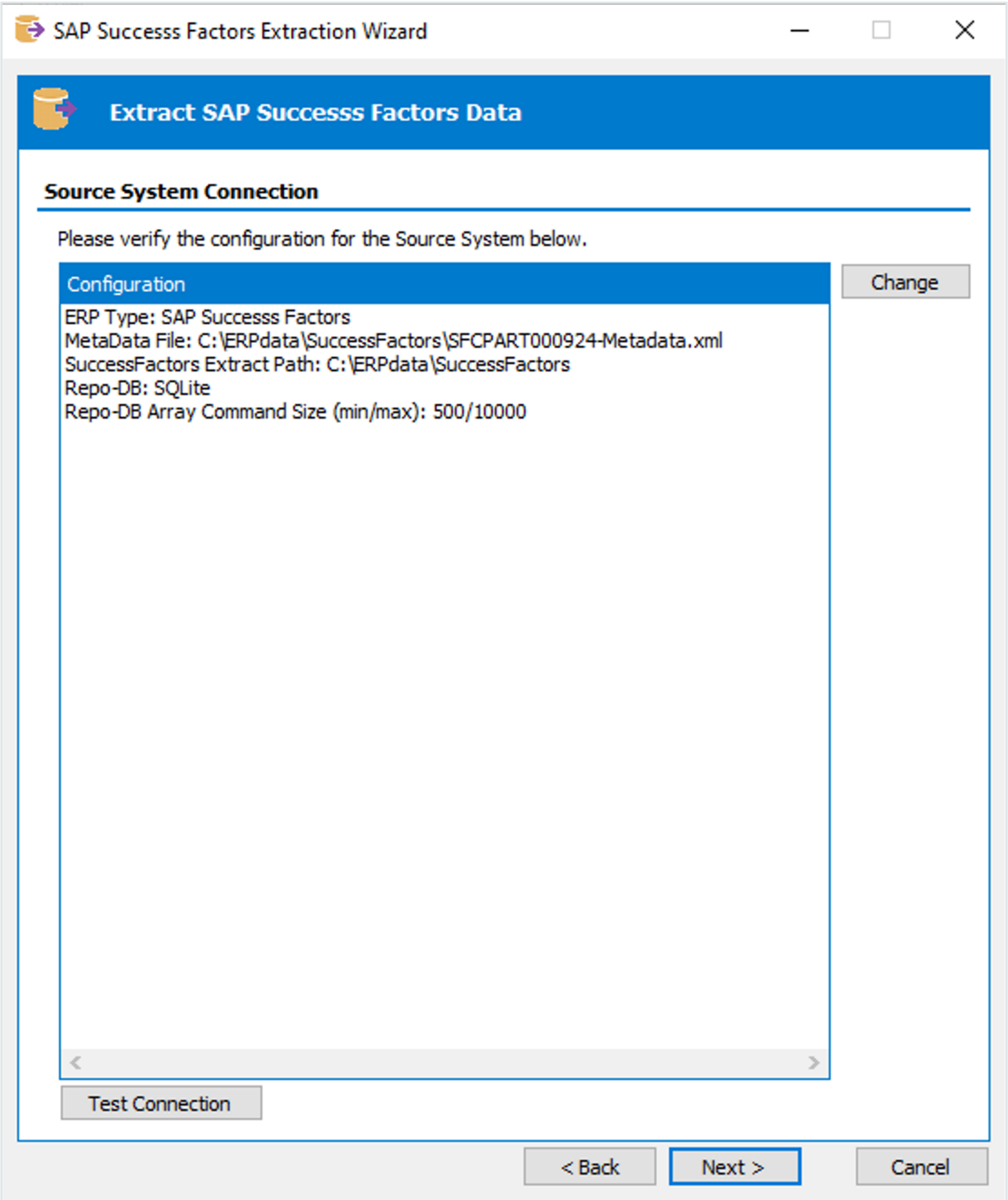
Assuming the 'Test Extract' was successful, click the 'Start Extract' button to begin the full extraction process.

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 ERP/CRM Integrator features for achieving this is provided in the next chapter.

Extracting metadata from SuccessFactors

Extracting metadata from SuccessFactors

Start the extraction process by selecting the 'ERP Extract' option from the ERP/CRM Integrator File menu, or the 'Extract from ERP' tile from the Navigation Screen. This will start the SuccessFactors Extraction Wizard. Click the 'Next' button on the first 'Extraction Wizard' form to display the 'Source System Connection' form.

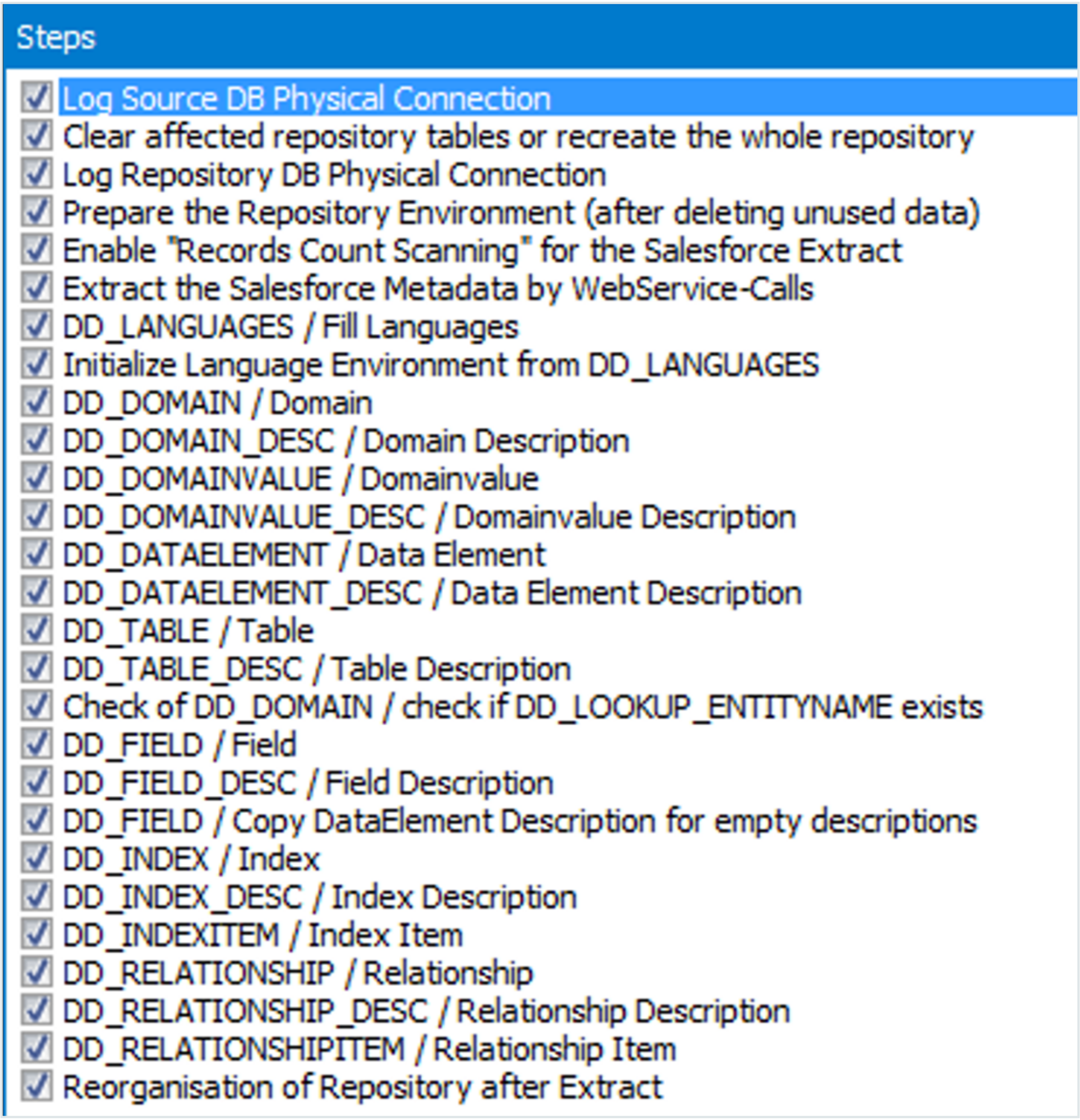


This form shows a summary of the connection parameters, previously supplied when completing the Repository Wizard. You can:

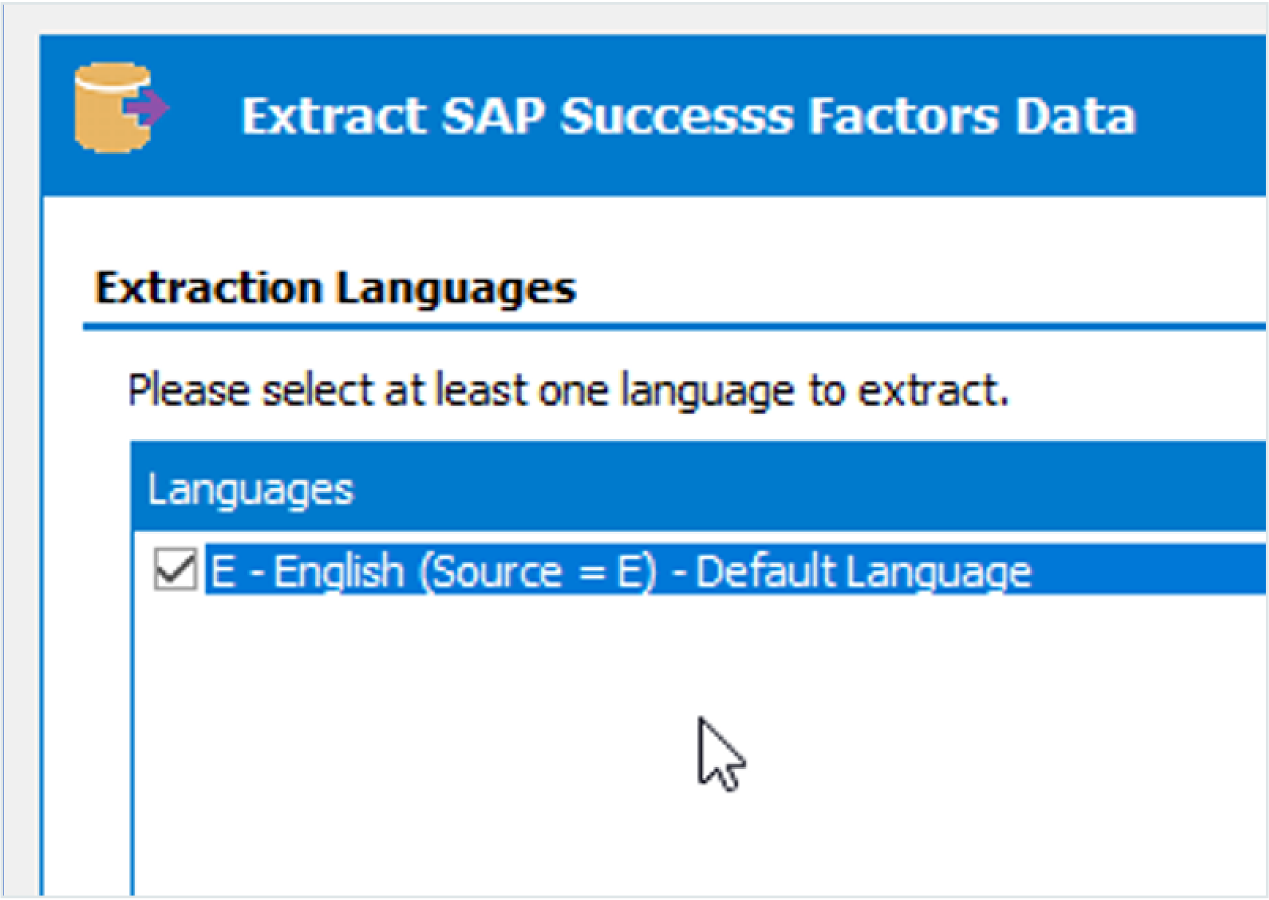
- Click the ‘Change’ button to further amend the connection parameters

  Click the ‘Test Connection’ button to verify the connection through to the Application.

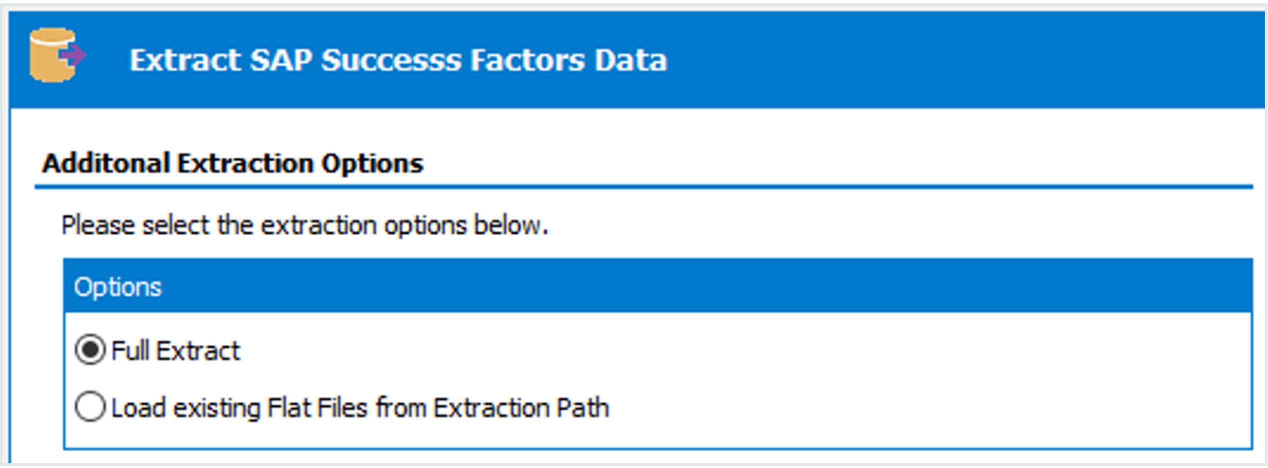
Now click the ‘Next’ button to proceed to the next stage.



This form lists each of the stages involved in extracting metadata from a SuccessFactors system. The 36 steps are checked ‘On’ and we recommend that you leave this selection and then click the ‘Next’ button to proceed to the next stage.



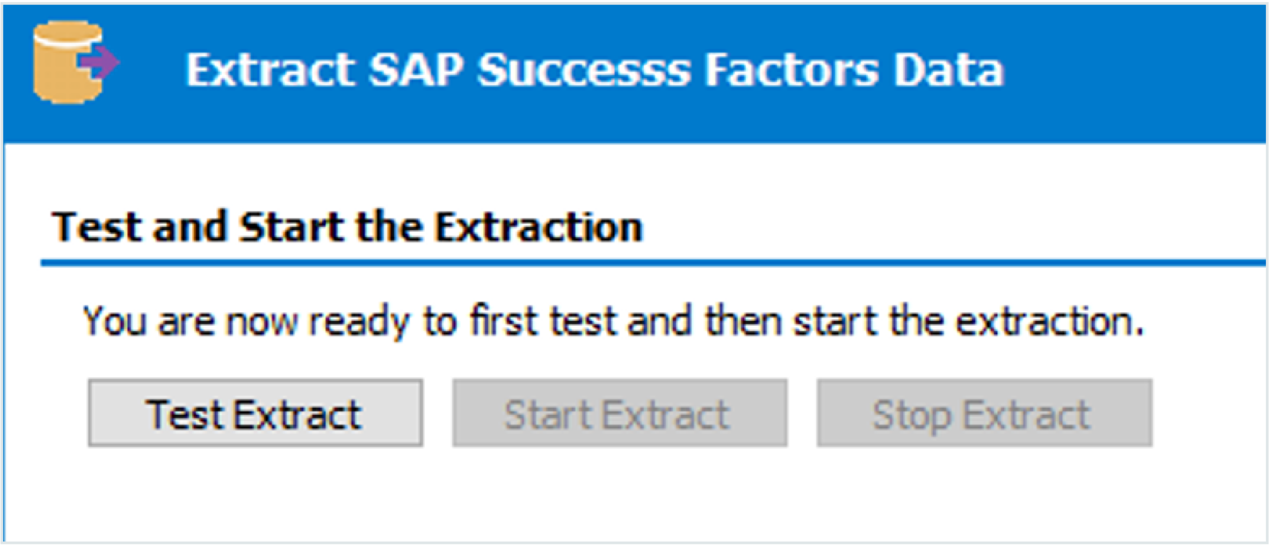
The extraction of metadata from SuccessFactors will normally be in English. Click the 'Next' button to proceed to the next stage of the Extraction Wizard.



The extraction of metadata from SuccessFactors not only populates the ERP/CRM Integrator repository, but also creates a series of text files. These text files can be used to rerun the extraction, or to allow population of a different ERP/CRM Integrator instance based upon these files.

The normal selection for this would therefore be ‘Full Extract’.

Click the ‘Next button to move to the next extract step.



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

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

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

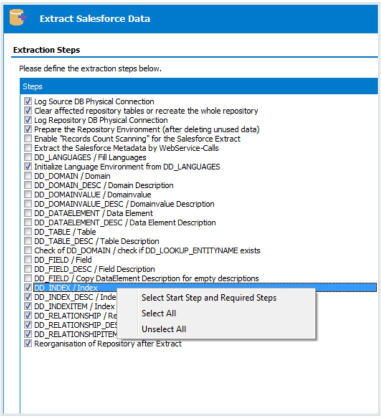
A series of status messages will allow you to monitor the extraction process. Once the extraction has completed, you will be ready to browse the extracted metadata. An overview of the ERP/CRM Integrator features for achieving this is provided in the next chapter.

Restarting an extraction

There may be circumstances where an extraction fails or has to be abandoned. In such a case, it is possible to restart the extraction process. This can also be used to rerun steps of a successfully completed extraction, without the need to run the full extract again.

To achieve this, follow the steps described above for the required source ERP system until the Extraction Steps screen. From this screen, click on the step which is the first step to be performed and Right Mouse Click to show the RMC menu. Now select the ‘Select Start Step and Required Steps’.

This will select any steps that need to be performed, plus the subsequent required steps. Then proceed with the extraction as normal.



Chapter 5

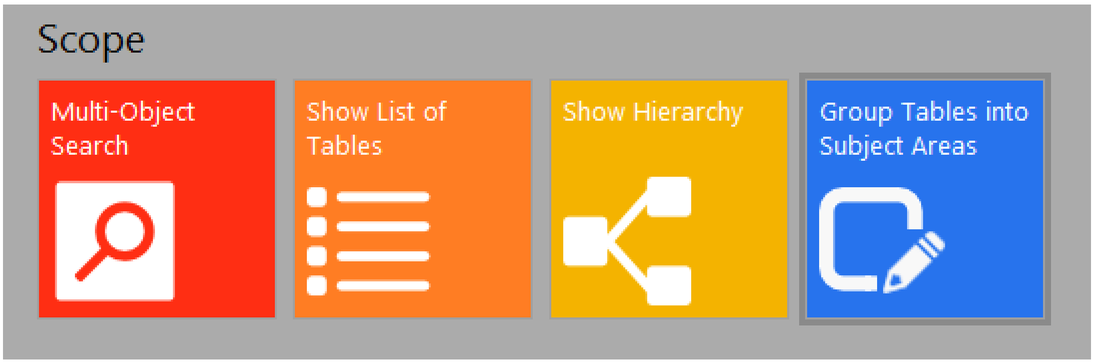
Quick Tour of ERP/CRM Integrator's Features

Gives an overview of the main ERP/CRM Integrator 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, ERP/CRM Integrator provides a convenient interface for exploring the metadata and exporting sub-sets into other environments.

Navigation Screen

The Navigation screen presents a series of clickable 'tiles' which correspond to the three phases involved with using the product effectively. There is an implied 'workflow' in the way the tiles are arranged. The middle tier of Tiles is a good starting point for exploring the metadata extracted from the ERP.

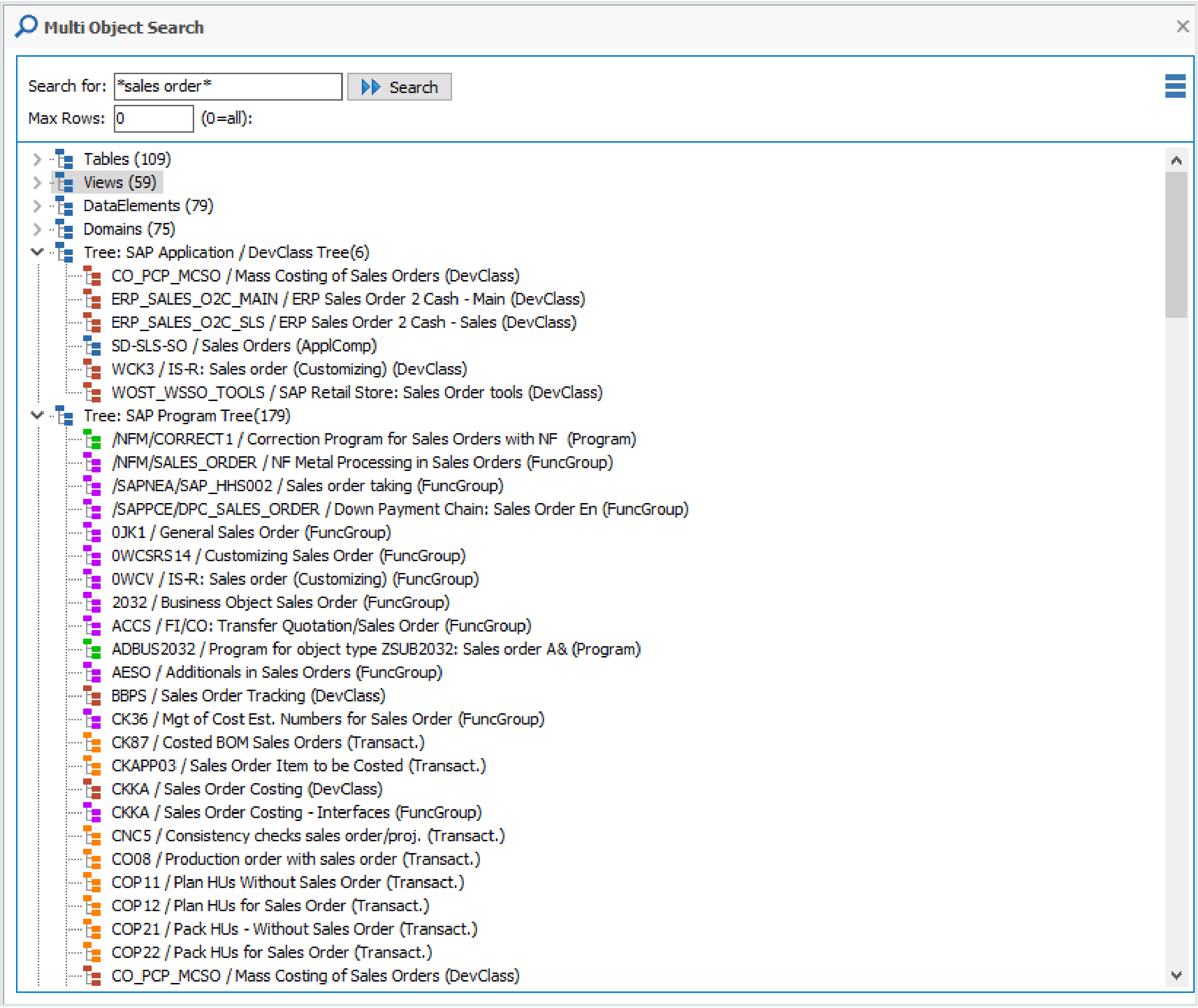


The features available from the four tiles shown are described in introductory form in the sections below. Please see the ERP/CRM Integrator User Guide for full details of these features.

- Multi-Object Search – see 'Multi-Object Search' below
- Show List of Tables – see 'Show List of Tables' below
- Show Hierarchy – see 'The Application Hierarchy' below
- Group Tables into Subject Areas – see 'Subject Areas' below

Multi-Object Search

This feature provides a search capability across a range of ERP/CRM Integrator repository 'object' types. Using the Search box at the top of the form, entering a search string will return the matching objects. The objects searched are Tables, Views, Domains, Data Elements, and Application Hierarchies. The results are returned as a series of nodes, categorised by object type.



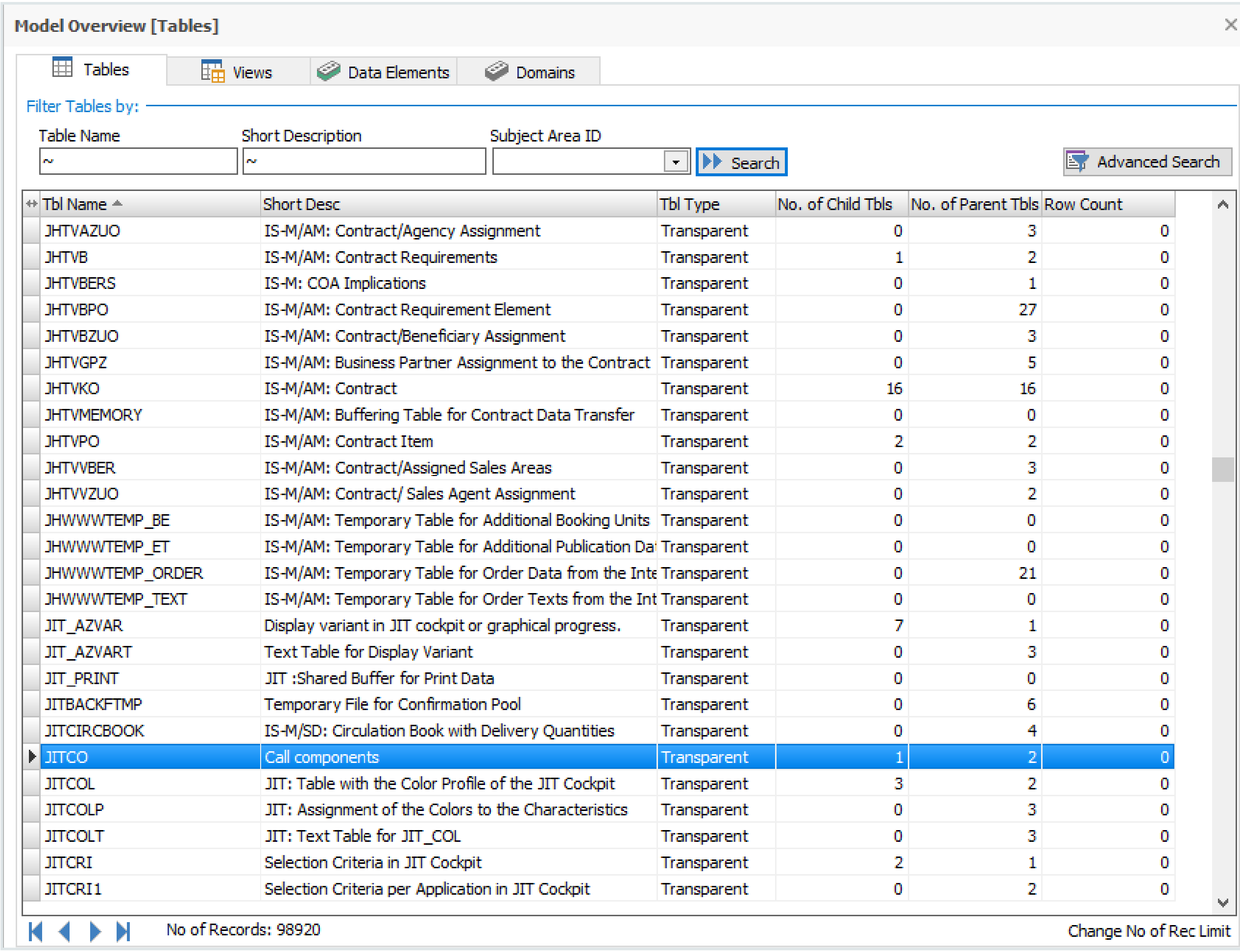
Objects discovered by the Search can be further explored by clicking on the desired object. See the ERP/CRM Integrator User Guide for full details of how to use this feature.

Show List of Tables

This feature is available from the Navigation Screen, and also the ‘Model Overview' tool on the Menu and Icon bar and is a good place to start exploring the metadata extracted from your application, such as searching for tables, their characteristics and how they are related.

Clicking the 

button will return a list of all the tables in the ERP/CRM Integrator repository, as shown below, which can be scrolled through.

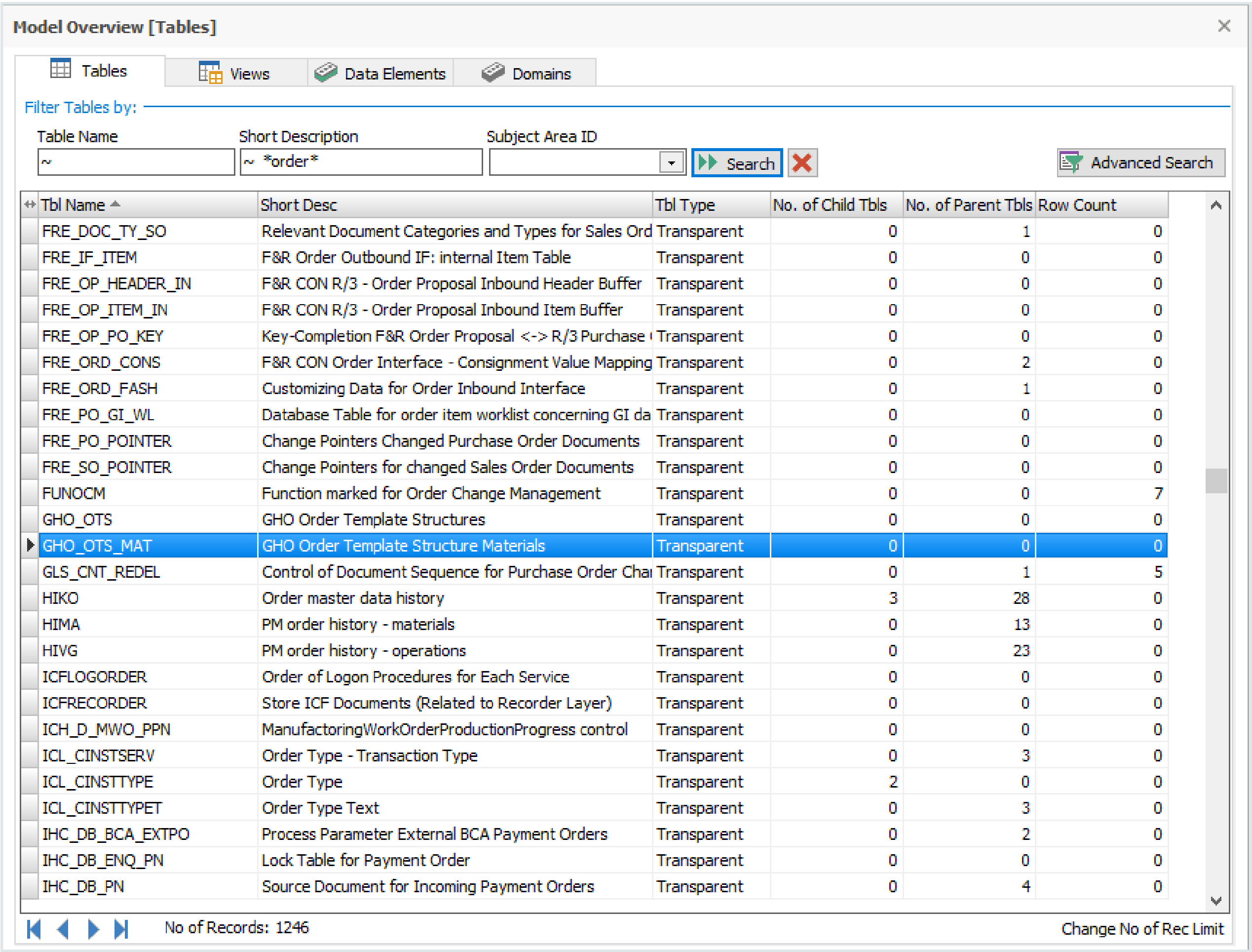


Tbl Name	Short Desc	Tbl Type	No. of Child Tbls	No. of Parent Tbls	Row Count
JHTVAZUO	IS-M/AM: Contract/Agency Assignment	Transparent	0	3	0
JHTVB	IS-M/AM: Contract Requirements	Transparent	1	2	0
JHTVBERS	IS-M: COA Implications	Transparent	0	1	0
JHTVBPO	IS-M/AM: Contract Requirement Element	Transparent	0	27	0
JHTVBZUO	IS-M/AM: Contract/Beneficiary Assignment	Transparent	0	3	0
JHTVGPZ	IS-M/AM: Business Partner Assignment to the Contract	Transparent	0	5	0
JHTVKO	IS-M/AM: Contract	Transparent	16	16	0
JHTVMEMORY	IS-M/AM: Buffering Table for Contract Data Transfer	Transparent	0	0	0
JHTVPO	IS-M/AM: Contract Item	Transparent	2	2	0
JHTVVBER	IS-M/AM: Contract/Assigned Sales Areas	Transparent	0	3	0
JHTVVZUO	IS-M/AM: Contract/ Sales Agent Assignment	Transparent	0	2	0
JHWWWTEMP_BE	IS-M/AM: Temporary Table for Additional Booking Units	Transparent	0	0	0
JHWWWTEMP_ET	IS-M/AM: Temporary Table for Additional Publication Da	Transparent	0	0	0
JHWWWTEMP_ORDER	IS-M/AM: Temporary Table for Order Data from the Inte	Transparent	0	21	0
JHWWWTEMP_TEXT	IS-M/AM: Temporary Table for Order Texts from the Int	Transparent	0	0	0
JIT_AZVAR	Display variant in JIT cockpit or graphical progress.	Transparent	7	1	0
JIT_AZVART	Text Table for Display Variant	Transparent	0	3	0
JIT_PRINT	JIT :Shared Buffer for Print Data	Transparent	0	0	0
JITBACKFTMP	Temporary File for Confirmation Pool	Transparent	0	6	0
JITCIRCBOOK	IS-M/SD: Circulation Book with Delivery Quantities	Transparent	0	4	0
JITCO	Call components	Transparent	1	2	0
JITCOL	JIT: Table with the Color Profile of the JIT Cockpit	Transparent	3	2	0
JITCOLP	JIT: Assignment of the Colors to the Characteristics	Transparent	0	3	0
JITCOLT	JIT: Text Table for JIT_COL	Transparent	0	3	0
JITCRI	Selection Criteria in JIT Cockpit	Transparent	2	1	0
JITCRI1	Selection Criteria per Application in JIT Cockpit	Transparent	0	2	0

Tables

The fields displayed for each table, in the 'Model Overview' include the internal table name 'Tbl Name' and some table descriptive text 'Short Desc'. The 'No. of Child Tbls' and 'No. of Parent Tbls' show the number of child and parent tables related to each individual table. The 'Row Count' shows the number of rows in each table (see 'How ERP/CRM Integrator determines the Row Count' in the ERP/CRM Integrator User Guide for more details of the Row Count) feature). The total number of tables or records is shown at the bottom of the frame.

Use the 'Filter Tables by': section in the upper part of the screen to search for tables with certain criteria and reduce the list of tables, or find a specific table. For example, type '*Order*' into the 'Short Description' box and click Search This will return a list of all tables with the characters 'Order' in the 'Short Desc' field. The 'Number of Records:' at the bottom of the screen reduces.



Tbl Name	Short Desc	Tbl Type	No. of Child Tbls	No. of Parent Tbls	Row Count
FRE_DOC_TY_SO	Relevant Document Categories and Types for Sales Ord	Transparent	0	1	0
FRE_IF_ITEM	F&R Order Outbound IF: internal Item Table	Transparent	0	0	0
FRE_OP_HEADER_IN	F&R CON R/3 - Order Proposal Inbound Header Buffer	Transparent	0	0	0
FRE_OP_ITEM_IN	F&R CON R/3 - Order Proposal Inbound Item Buffer	Transparent	0	0	0
FRE_OP_PO_KEY	Key-Completion F&R Order Proposal <-> R/3 Purchase (	Transparent	0	0	0
FRE_ORD_CONS	F&R CON Order Interface - Consignment Value Mapping	Transparent	0	2	0
FRE_ORD_FASH	Customizing Data for Order Inbound Interface	Transparent	0	1	0
FRE_PO_GI_WL	Database Table for order item worklist concerning GI da	Transparent	0	0	0
FRE_PO_POINTER	Change Pointers Changed Purchase Order Documents	Transparent	0	0	0
FRE_SO_POINTER	Change Pointers for changed Sales Order Documents	Transparent	0	0	0
FUNOCM	Function marked for Order Change Management	Transparent	0	0	7
GHO_OTS	GHO Order Template Structures	Transparent	0	0	0
GHO_OTS_MAT	GHO Order Template Structure Materials	Transparent	0	0	0
GLS_CNT_REDEL	Control of Document Sequence for Purchase Order Chai	Transparent	0	1	5
HIKO	Order master data history	Transparent	3	28	0
HIMA	PM order history - materials	Transparent	0	13	0
HIVG	PM order history - operations	Transparent	0	23	0
ICFLOGORDER	Order of Logon Procedures for Each Service	Transparent	0	0	0
ICFRECORDER	Store ICF Documents (Related to Recorder Layer)	Transparent	0	0	0
ICH_D_MWO_PPN	ManufactoringWorkOrderProductionProgress control	Transparent	0	0	0
ICL_CINSTSERV	Order Type - Transaction Type	Transparent	0	3	0
ICL_CINSTTYPE	Order Type	Transparent	2	0	0
ICL_CINSTTYPET	Order Type Text	Transparent	0	3	0
IHC_DB_BCA_EXTPO	Process Parameter External BCA Payment Orders	Transparent	0	2	0
IHC_DB_ENQ_PN	Lock Table for Payment Order	Transparent	0	0	0
IHC_DB_PN	Source Document for Incoming Payment Orders	Transparent	0	4	0

The total number of tables extracted from a full ERP database into the ERP/CRM Integrator repository is usually very large, (for example over 90,000 shown in the example above), too many to understand and manage easily as a single group.

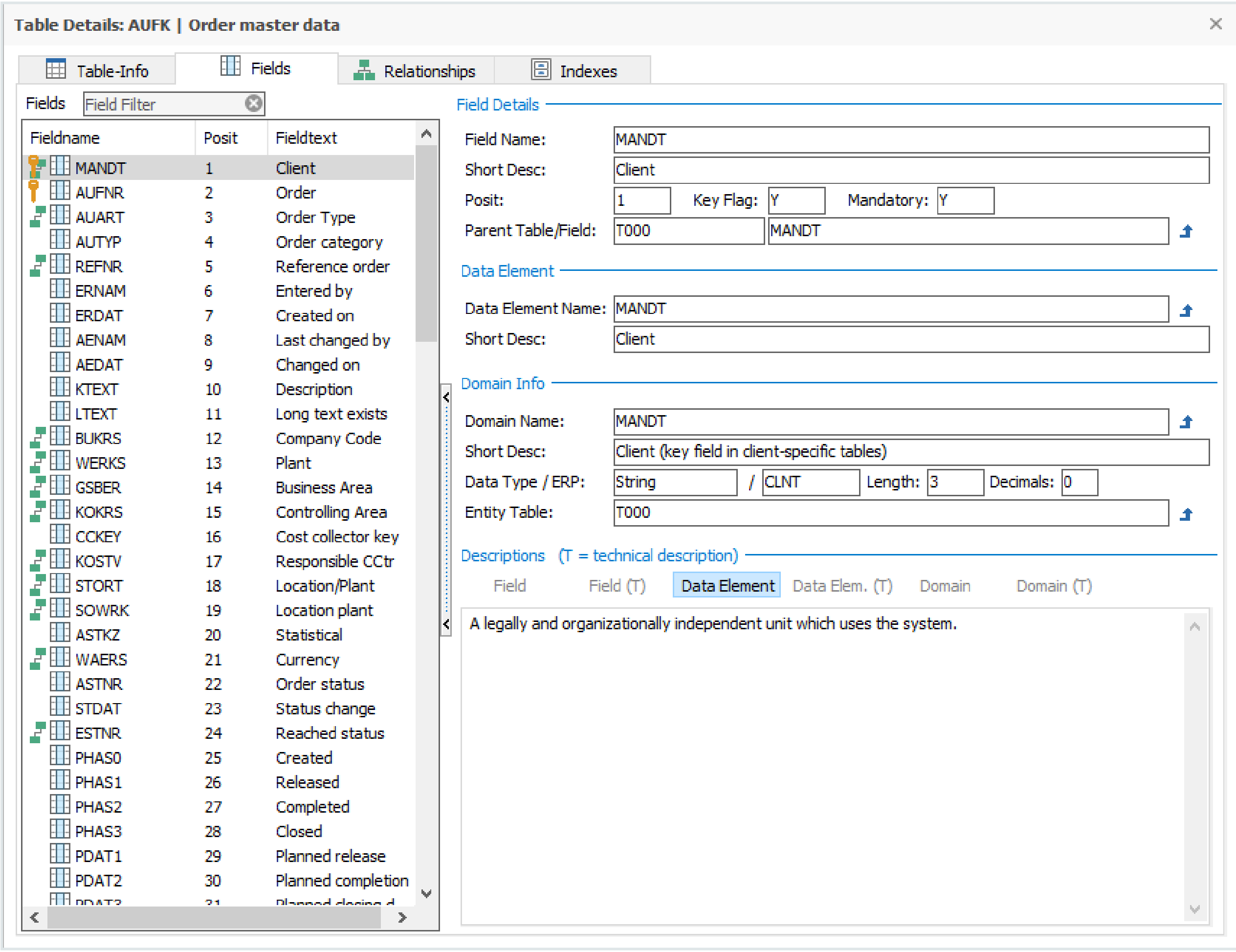
So an important facility provided by ERP/CRM Integrator is its powerful filter/search capability to help the user find the tables appropriate to a particular requirement and then enable the tables to be grouped as required into manageable sets or subject areas for further analysis or export to another tool. See later section on Filtering &Searching including use of the Advanced Search button and Subject Areas.

Clicking the to the right of the Search button is a quick way to clear all search criteria.

Double Click on one of the tables listed in the 'Model Overview' screen to see more information about the table highlighted. Information is shown in a series of tabs. The 'Fields' tab is introduced below.

Fields

The Fields tab shows a list of fields making up the table. It is the first tab to be presented of the Table tabs.



Clicking on individual field names in the left-hand side of the screen will cause the details about the field to be shown in the frames on the right-hand side of the screen.

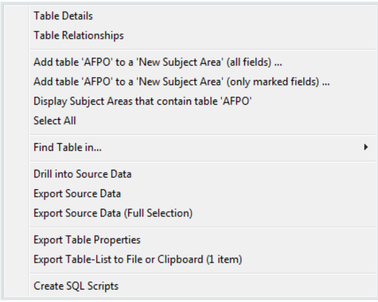
The default display format shows details of each field in the table. To the left of each field icon  there may be an additional icon. This can be:

Icon	Description
	The Field is part of the Table's Primary Key

Icon	Description
	The Field is part of the Primary Key and also a Foreign Key
	The Field is a Foreign Key field

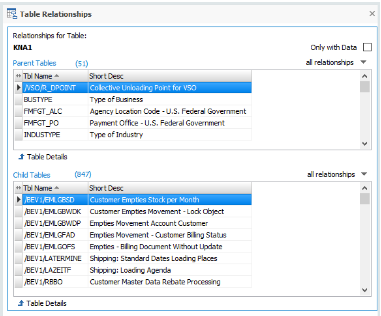
Table Relationships

From the ‘Tables’ tab on the Model Overview Screen, select a table and click the Right Mouse button. A number of options are presented.



Select ‘Table Relationships’ by moving the mouse over the option and clicking. A new window is opened with details of the Tables linked to the selected table in the Model Overview.

The table name and description are shown of both the Parent and Child tables, making it easier to trace linked tables and include them in appropriate sets



Filtering / Searching

The total number of tables extracted from a full ERP database into the ERP/CRM Integrator repository is usually very large. ERP/CRM Integrator’s powerful filter / search capability is essential to help the user find the tables appropriate to a particular requirement and enable the tables to be grouped as required into manageable sets or subject areas.

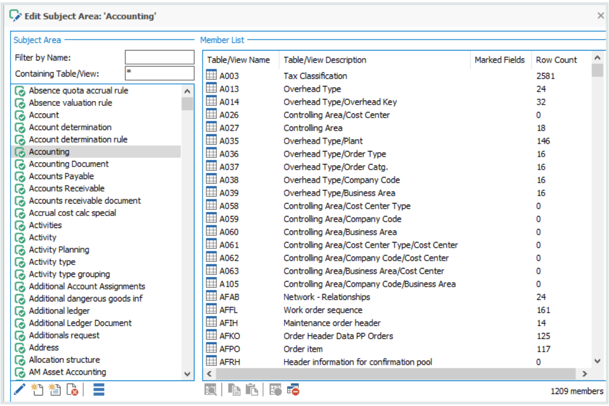
This grouping ability makes it easier to understand and communicate appropriate parts of the metadata model. The concept of Subject Area groupings can also be utilised in filtering and searching, providing an additional dimension to limit the task to a particular set of tables.

Criteria can be combined to allow more focused searches and the Advanced Search button makes available a number of additional criteria to use. The Advanced Search capability, combined with the use of Subject Areas, also allows searches of one set of tables whilst excluding tables in another set.

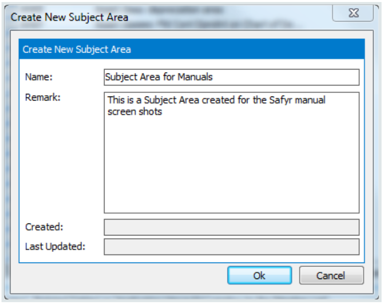
Subject Areas

Subject Ares are the means to make user-defined groupings of Tables and Views in ERP/CRM Integrator.

To create and use a Subject Area, click the 'Group Tables into Subject Areas' tile on the navigation screen, or click the icon on the ERP/CRM Integrator toolbar. This will display the Edit Subject Areas form which has features for creating and populating subject areas.



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

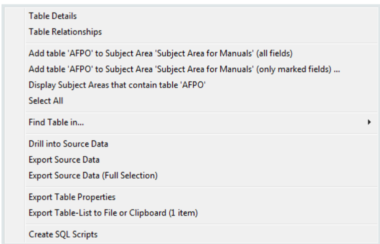


The next step is to add tables into the subject area.

Keep open the Subject Area into which you want to place tables.

Return to the Model Overview main 'Tables' tab. Select the required tables using a standard Shift/Click or Control/Click approach to choosing rows.

Then Right Mouse Click on one of the highlighted selected tables. The Right Mouse Click menu is then displayed, as shown. Now choose the 'Add the selected...' option to add the selected tables to the currently open Subject Area.



There are other methods for populating a subject area. These are described fully in the ERP/CRM Integrator User Guide.

Filtering using Subject Areas

From the Model Overview screen, one of the filter criteria fields available is the Subject Area. This allows a Search to be focused on a set of tables included in the subject area. With this facility a chosen set of tables can be split into other sets or refined by using further searches. This is described further in the ERP/CRM Integrator User Guide.

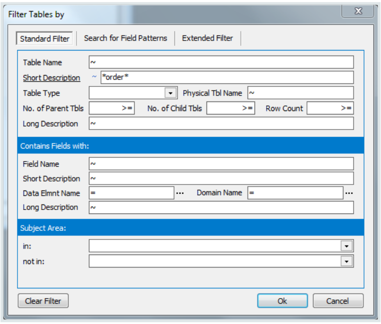
Advanced Search

From the Model Overview Tables screen, click the Advanced Search button to show the additional filter criteria available.

Filter criteria from the Model overview screen is carried forward to the Advanced Search.

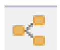
The icons in the left- or right-hand portion of the fields allow more complex comparisons available. Click in the field to select the field and then click on the icon shown to the left of the field to select the appropriate criteria.

The section at the bottom of the Filter screen allows tables from a subject area to be included or excluded from a search.



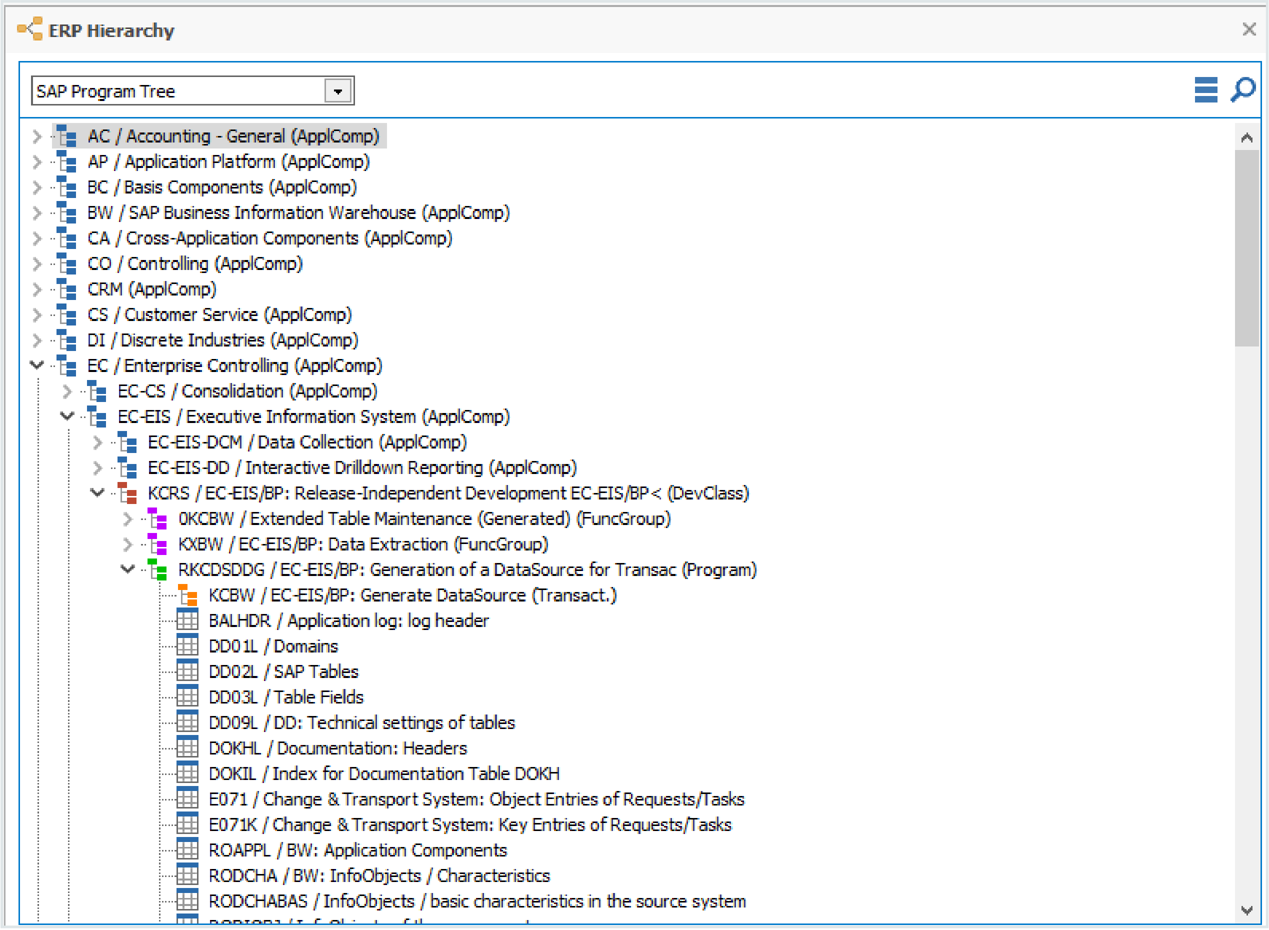
The Application Hierarchy

The Application Hierarchy feature in ERP/CRM Integrator is an alternative way of looking at the contents of the ERP/CRM Integrator repository. The general concept of the Hierarchy is to show tables and/or views in logical groupings. The content of these hierarchies is very dependent on the ERP being used, but the general appearance and functionality is the same across all ERP types supported by ERP/CRM Integrator.

Click the 'Show Hierarchy' tile on the Navigation screen, or the  icon on the ERP/CRM Integrator toolbar to display the Application Hierarchy. This presents a list of modules and their associated tables. The actual content of the hierarchy shown will depend on the Enterprise Application being viewed. There may also be a choice of hierarchy, based on the drop-down list at the top of the Application Hierarchy screen.

Clicking on a tree node expands a tree of subsidiary 'objects'. 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.

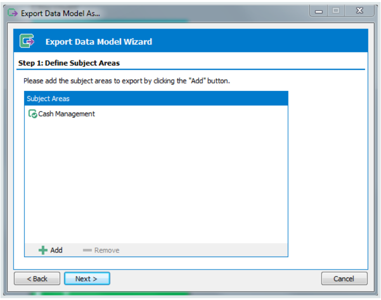
See the ERP/CRM Integrator User Guide for more details on Application Hierarchy navigation.



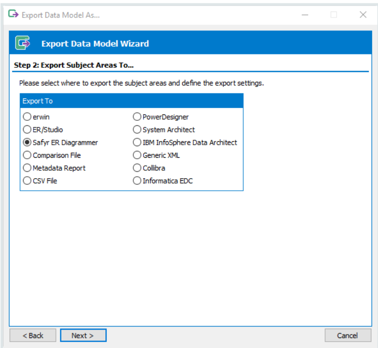
Exporting to third party tools

The Export to third party tools is based on the ERP/CRM Integrator subject area concept. To begin the process of exporting the chosen data definitions to the tool of choice, click the icon on the ERP/CRM Integrator tool bar to open the Export Data Model Wizard, or click the 'Export Subject Areas...' tile on the Navigation screen. Then 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 to add one or more subject areas you require. Click the 'Next' button to progress to the next stage of the export wizard.



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



Task automation with ERP/CRM Integrator

Many of the tasks that are typically required for regular usage of ERP/CRM Integrator can be automated.

These include:

- Extraction from the source application (SAP, Salesforce....)
- Creation of Subject Areas
- Expansion of Subject Areas
- Export of Subject Areas (only certain formats currently supported)

An overview of this capability can be found in Appendix D of the ERP/CRM Integrator User Guide. Full details of the options to achieve automation are described in the 'ERP/CRM Integrator Task Automation Guide'.

Appendix A - Installing the SAP ABAP Function Modules

Details of the ABAP Function Modules used by ERP/CRM Integrator to extract metadata

If extraction of metadata from SAP, SAP BW or SAP BW HANA via ABAP has been chosen, then it will be necessary to install an ABAP Function Module on each SAP system from which metadata is to be extracted.

These Function Modules are supplied as SAP Transports and will be made available to customers for installation.

There is a separate Transport for each of the four types of SAP system that ERP/CRM Integrator can work with. These correspond to the 'Source System Type' specified on Step 3 of the Repository Wizard (see 'Using the Repository Manager to configure ERP/CRM Integrator' earlier in this manual).

ERP/CRM Integrator is supplied with four additional ABAP Function Modules (one each for SAP ERP, SAP ERP CDS, SAP BW and SAP BW HANA) that can be used to run the 'main' ABAP Function Modules from within the SAP environment. These may be used to run the extraction process and create text files if it is not possible to access the SAP system via RFC calls.

The SAP Objects installed are described in the following table. Each transport, includes an SAP Package, Function Group and two Function Modules.

The 'Main' Function Module is the one normally called by ERP/CRM Integrator to extract metadata from the SAP system. The 'All' Function Module can be used when invocation by RFC is either not possible or not permitted by the SAP team. The All Function Module runs the 'main' Function Module to create a set of text files. These files can then be imported to ERP/CRM Integrator.

System Type	System without CDS prior to ABAP 7.4 SP5	CDS ABAP 7.4 SP5 or later	BW 'Classic'	BW HANA (BW7.4 or greater)
Namespace	/SILWOOD/	/SILWOOD/	/SILWBW/	/SILWBW/
Main Function Module	ERP_NONCDS	ERP_CDS	BWCLASSIC	BWHANA
ALL Function Module	ERP_NONCDS_ALL	ERP_CDS_ALL	BWCLASSIC_ALL	BWHANA_ALL
Function Group	ERP_NONCDS_FGRP	ERP_CDS_FGRP	BWCLASSIC_FGRP	BWHANA_FGRP
Package	ERP_NONCDS_PACKAGE	ERP_CDS_PACKAGE	BWCLASSIC_PACKAGE	BWHANA_PACKAGE

Using the ABAP ALL Function Module

The ALL Function Module calls the main ABAP Function Module to extract metadata from the SAP, SAP CDS, SAP BW or SAP BW HANA system. The Function Module can be run in two different ways:

- To create the files on the 'local' PC. The generated ABAP files will be directly available to ERP/CRM Integrator so they can be processed by ERP/CRM Integrator to populate the ERP/CRM Integrator repository. This method uses an SAP feature called GUI_DOWNLOAD. GUI_DOWNLOAD moves files from the server onto a local PC and this cannot be run in 'batch' mode.
- To create the files on the SAP server. The generated ABAP files will be created on a local SAP Server drive and will need to be copied to a drive visible to ERP/CRM Integrator before they can be processed by ERP/CRM Integrator to populate the ERP/CRM Integrator repository. This method does not use GUI_DOWNLOAD and can therefore be run in 'batch' mode. It is the responsibility of the ERP/CRM Integrator user to create a suitable batch program for scheduling the ABAP Function Module when it has been decided to run in batch mode.

Running the 'ALL' Function Module creates a set of text files. These will need to be processed by ERP/CRM Integrator to complete the metadata load. This can be accomplished by running the Extraction Wizard as normal, and selecting 'Import Repository from Load Files' on the SAP

Extract Options dialog. For more details see the chapter ‘Extracting Metadata from SAP and SAP BW’.

Running the ABAP ALL Function Module

The ALL Function Modules use 4 parameters. These are:

P_EXP_FILE_PATH: enter a suitable location for the files created by the Function Module

P_LANGUAGE_LIST: Enter a valid SAP language code

P_TRIAL_MODE: Enter ‘Y’ to run the Function Module without exporting actual data, enter ‘N’ to create the data files.

P_EXP_TARGET: Set this to ‘G’ to create files via GUIDOWNLOAD onto a PC, or ‘S’ to create the files on an SAP Server (using Dataset transfer).

Appendix B - The SafyrSettings.xlsx file

Describes the structure and usage of the SafyrSettings.xlsx file

The SafyrSettings.xlsx file stores most of the options used by ERP/CRM Integrator. 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.

File usage

The SafyrSettings.xlsx file is used by ERP/CRM Integrator to record a range of settings used by ERP/CRM Integrator. The sections below describe the contents of this Excel spreadsheet, which is presented as a set of worksheets.

> **Note** ERP/CRM Integrator users may want to modify the spreadsheet (in particular see Appendix B of the ERP/CRM Integrator User Guide). Before doing this, copy the SafyrSetting.xlsx and use this to create a copy named SafyrSettings_Cust.xlsx in the ERP/CRM Integrator installation folder. Then add the required rules to this SafyrSettings_Cust.xlsx spreadsheet.

When the ERP/CRM Integrator application is started, if the file SafyrSettings_Cust.xlsx exists, then this will be used instead of the delivered SafyrSetting.xlsx file.

File structure

The file is structured as a number of worksheets. The worksheets are:

DataTypeMapping

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

RepoDa	RepoDataTypeD	SAP	JDED	PSoft	SAPBW	Siebel	SiebelAly	ORAEBS	Ot	Ot	Ot	LenFixed
S	String	CHAR;VARC	A	CHAR	CHAR;VARC	V		E;V				No
S	String	ACCP;CLNT;CUKY;LANG;UNIT			ACCP;CLNT;CUKY;LANG;U	C						No
S	String			LONG								No
BN	Binary	RAW	B;O	VERS	RAW			R				No
FS	FloatSingle											8
FL	Float											12
FD	FloatDouble	FLTP			FLTP							16
N	Number	CURR;DEC;PREC;QUAN	P;S		CURR;DEC;PREC;QUAN	N		N				No
N	Number			NUM								No
N	Number			NUM								No
N	Number			SIGNED								No
N	Number			SIGNED								No
NS	NumberString	NUMC			NUMC							No

The extraction of metadata by ERP/CRM Integrator from the ERP includes 'logical' ERP datatypes. These are specific to each ERP type. ERP/CRM Integrator has no direct knowledge of how these logical datatypes are implemented in the physical RDBMS. This sheet presents a mapping, showing how each logical ERP datatype maps to a physical RDBMS-specific datatype.

It would not normally be necessary to amend this sheet, but if required to do so, we recommend that you consult your ERP/CRM Integrator representative before making any changes.

ERPTypeNaming

This worksheet records the names for the various Enterprise Application packages addressed by ERP/CRM Integrator.

ERPTypeID	ShortDesc	LongDesc
Unknown	N_D	Not Defined
SAP	SAP	SAP
JDED	JDE EntOne	JD Edwards Enterprise One
PSoft	PS Ent	PeopleSoft Enterprise
SAPBW	SAP BW	SAP BW
Siebel	Siebel	Siebel
SiebelALY	Siebel Analytics	Siebel Analytics
ORAEBS	Oracle EBS	Oracle E-Business Suite
Other1	Other ERP 1	Other ERP Type 1
Other2	Other ERP 2	Other ERP Type 2
Other3	Other ERP 3	Other ERP Type 3

The columns are as follows:

- ERPTypeID:This is the internal identifier for the ERP type
- ShortDescThe short description that will appear in the ERP/CRM Integrator interface
- LongDescThe long description that will appear in the ERP/CRM Integrator interface

ERPTypeLanguages

This worksheet lists the available languages for extraction of descriptive fields from each Enterprise Application. A typical set of language codes for each Enterprise Application are coded in this worksheet, but you may need to add your own if you wish to extract metadata in a language not included in the list. The worksheet format is shown in the following example:

A	B	C	D	E	F	G	H	I	J
RepoLanguageID	LanguageDesc	NeedUnicode	IsActive	SAP	JDED	PSoft	SAPBW	Siebel	ORAEBS
E	English	N	Y	E	E	ENG	E	E	US
D	German	N	Y	D	D	GER	D	D	
I	Italian	N	Y	I	I	ITA	I		
F	French	N	Y	F	F	FRA	F		
S	Spanish	N	Y	S	S	ESP	S		
N	Dutch	N	Y	N		DUT	N		
P	Portuguese	N	Y	P		POR	P		
V	Swedish	N	Y	V		SVE	V		
R	Russian	Y	Y	R		RUS	R		
C	Czech	N	Y	C		CZE	C		
1	Chinese (Simplified)	Y	Y	1		ZHS	1		
M	Chinese (Traditional)	Y	Y	M		ZHT	M		
J	Japanese	Y	Y	J		JPN	J		
3	Korean	Y	Y	3		KOR	3		

The columns are as follows:

- RepoLanguageID:This is the internal identifier for the ERP type
- LanguageDescA descriptive name for the language
- NeedUniCodeIndicates if a Unicode supported schema is required to accommodate the language
- IsActiveIf 'Y' then the language is active. If 'X' then the language is not currently supported by ERP/CRM Integrator
- SAP, JDED, etc....The 'native' language code for that ERP that corresponds to the Repository Language code. For example, the PeopleSoft language code for English is 'ENG' – this maps to the ERP/CRM Integrator internal language code of 'E'. So when ERP/CRM Integrator performs the metadata extraction from a PeopleSoft system where the user has requested 'English', ERP/CRM Integrator uses the worksheet to select the PeopleSoft-specific language code to use.

PSoftRuleBasedRelationships

This worksheet is used by the Rules Based Relationship Generation feature of ERP/CRM Integrator to create additional relationships for a PeopleSoft Repository. Please see the ERP/CRM Integrator User Guide for more details on how to use this feature. The worksheet format is shown in the following example:

ChildTableName	ChildFieldNames	ParentTableName	RuleNotActive	ExtRelGenParent	Remark
AAP_YEAR_GOALS		AAP_YEAR			
AAP_YEAR_JOBGRP		AAP_YEAR			
AAP_YEAR_JG_GLS		AAP_YEAR_JOBGRP			
VENDOR_ADDR		VENDOR		X	VENDOR shall be used
VENDOR_ADDR_LNG	+EFFDT	VENDOR_ADDR	X		just and example to sh
VENDOR_ADDR_PHN		VENDOR_ADDR			
VENDOR_ADDR_TMP		VENDOR_ADDR			
VENDOR_CNTCT		VENDOR			
VENDOR_LOC		VENDOR			
VENDOR_LOC_TMP		VENDOR_LOC			
VENDOR_PAY		VENDOR_LOC			
VENDOR_PAY_TMP		VENDOR_PAY			
VENDOR_POLICY		VENDOR			
VENDOR_SF_TBL	SETID;VENDOR_ID;	VENDOR			
VENDOR_SF_TBL	EXT_ORG_ID;*;	VENDOR			
EPPCM_CATG_HIER		EPPCM_CATEGORY			default mapping
EPPCM_CATG_HIER	EPPCM_PARPORTALNM;EPPCM_PARCATGID;	EPPCM_CATEGORY			rolenamed mapping

The columns are as follows:

- ChildTableName:The name of the Child table for the relationship.
- ChildFieldNames:See 'Defining a Rule' in Appendix B of the User Guide.
- ParentTableName:The name of the Parent table for the relationship.
- RuleNotActive:If blank, then the rule is active. If 'X' then the rule will be ignored.
- ExtGenRelParentUsed by the Extended Relationship generation process (See Appendix B of the ERP/CRM Integrator user Guide for details).
- Remark:A free-format comment area for entry of optional notes describing the rule

JDERuleBasedRelationships

This worksheet has the same format as the PSoftRuleBaseRelationships worksheet. It is used by the RulesBased Relationship Generation feature of ERP/CRM Integrator to create additional relationships for a JDEdwards Repository. See Appendix B of the ERP/CRM Integrator user Guide for more details.

ChildTableName	ChildFieldNames	ParentTableName	RuleNotActive	ExtRelGenParent	Remark
F0015		F0013		X	Default Parent for
F0015	+REPLLAST;T1CRDC	F0013			
F08320	BAANN8	F0101			
F083202X		F083202			
F08320B		F083202			
F08320C		F083202			
F08320WF		F083202			
F08320X		F08320			
F08330		F083202			
F083303		F083302			
F083303		F069016			
F083304		F083302			
F083304		F083301			
F083305		F083301			
F08330B		F083202			
F08330B	+REPLLAST;BTAOPT	F083202			
F08330C		F083202			
F08330C	+REPLLAST;PCAOPT	F083202			
F08330WF		F083202			
F08330WF	+REPLLAST;BRAOPT	F083202			

SAPRuleBasedRelationships

This worksheet has the same format as the PSoftRuleBaseRelationships worksheet. It is used by the Rules Based Relationship Generation feature of ERP/CRM Integrator to create additional relationships for a SAP Repository. See Appendix B of the ERP/CRM Integrator user Guide for more details.

	A	B	C	D	E	
1	ChildTableName	ChildFieldNames	ParentTableName	RuleNotActive	ExtRelGenParent	Remark
2	ACO_GROUP_HIER		ACO_GROUP			
3	ACO_GROUP_HIER	+REPLLAST;CHILD_GROUP_ID	ACO_GROUP			
4	ACO_GROUP_USER		ACO_GROUP			
5	ACO_USER_GROUP		ACO_GROUP			
6	ACO_USER	CLIENT;USER_ID	USR01			
7						
8						
9						

CollibraMappings

This worksheet has a set of Collibra Asset mappings to allow a level of configuration for the ERP/CRM Integrator to Collibra interface. The worksheet is only relevant to the Collibra export and users should refer to the appropriate ERP/CRM Integrator Collibra interface documentation for details of this worksheet.

	A	B	C	D	E
1	#AttributeTypeMapping				
2	AttributeType	Datatype	CollibraAttributeName	CollibraTagName	IsStandardCollibra
3	ErpPhysicalName	string	Original Name		Yes
4	ErpLogicalName	string	ERP Logical Name		No
5	Description	string	Description		Yes
6	TableType	string	Table Type		Yes
7	RowCount	integer	Row Count		Yes
8	ColumnPosition	integer	Column Position		Yes
9	IsPrimaryKey	boolean	Is Primary Key		Yes

DataCatalogJSON

This worksheet has a set of Asset mappings to allow a level of configuration for the Safyr JSON export format. The worksheet is only relevant to the JSON export and users should refer to the appropriate JSON interface documentation for details of this worksheet.

	A	B	C	D
1	#AttributeTypeMapping			
2	AttributeType	Datatype	TransferToTable	TransferToView
3	PhysicalName	string	Yes	Yes
4	LogicalName	string	Yes	Yes
5	LongDescription	string	Yes-Opt	Yes-Opt
6	TableType	string	Yes	Yes
7	RowCount	integer	Yes-Opt	NA
8	ColumnPosition	integer	NA	NA
9	IsPrimaryKey	boolean	NA	NA

Version Support

This worksheet records the versions of ERP/CRM Integrator that will be compatible with this version of the spreadsheet. If the ERP/CRM Integrator version is not compatible, the user will see an error message on starting ERP/CRM Integrator. Typically this can occur when the user has copied SafyrSettings.xlsx to SafyrSettings_Cust.xlsx in order to record relationship rules (see sections above).

	A	B
1	ValidForVersion	
2	6.3.10	
3	6.3.11	
4		

Appendix C - Using SAPRFC.ini with ERP/CRM Integrator

Describes how to use the SAPRFC.ini file to attach to SAP systems with ERP/CRM Integrator

The ERP/CRM Integrator 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 the Installation chapter above. The SAPRFC.ini file allows a richer set of parameters to be used where the standard set shown in ERP/CRM Integrator are not sufficient to perform a satisfactory connection.

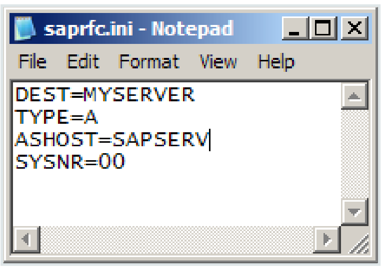
Creating the SAPRFC.ini file

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

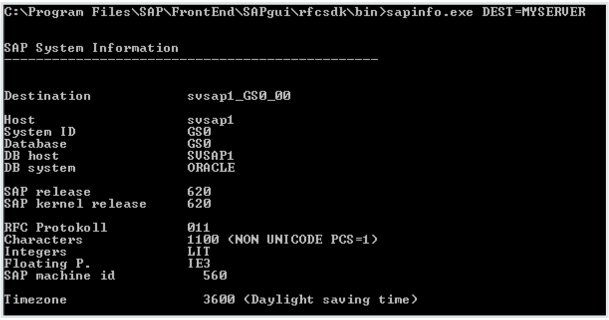
If there are other applications accessing SAP from the PC, then SAPRFC.ini may already exist. It may be located in the following folder:

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

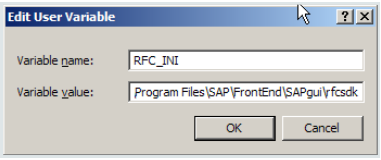
If the file does not exist, use Notepad or a similar text editor to create the file structure as shown below.



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.



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.



Using SAPRFC.ini from ERP/CRM Integrator

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

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

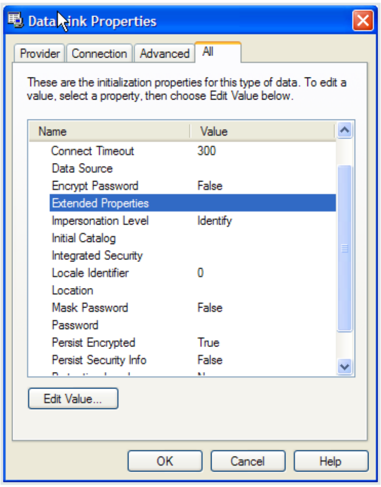
Appendix D - Connecting to a SQLAnywhere database

Describes how to configure an ADO connection to a SQLAnywhere database

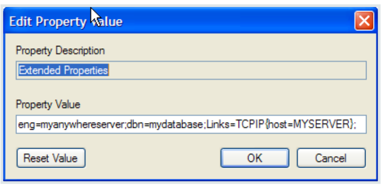
It is important to use an ADO connection to a SQLAnywhere database, rather than using ODBC. This will lead to faster extraction times from the ERP system. The Installation chapter above describes how to perform the first few steps in configuring such a connection. The additional settings are described below.

Settings for connecting to the database

Having selected SQL Anywhere OLDEB Provider on the ‘Provider’ tab of the Data Link Properties screen, click on the ‘All’ tab to display the screen as shown below.



Click on the ‘Extended Properties’ and then select the ‘Edit value’ button.



Now edit the ‘Property Value’ as shown above.

The string is of the form: eng=<dbserver>;dbn=<dbname>;Links=TCPIP{host=<servername>};

Where the variables are as follows:

- dbserver:The name of the SQLAnywhere Server on which the database resides
- dbname:The name of the SQLAnywhere database
- servername: The name of the hardware server on which the database resides.

After entering these values, click the OK button.

Now click the 'Connection' tab and verify the connection is working by clicking the 'Test Connection' button.

Appendix E - SAP GUI Security Settings

Adjusting the SAP GUI Security Settings to allow a smooth extraction of metadata

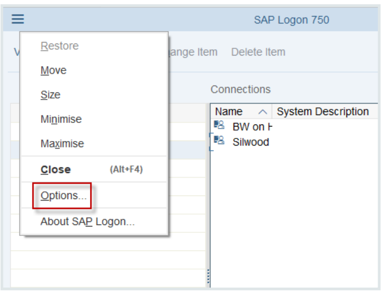
ERP/CRM Integrator uses libraries in the SAP GUI software to run the supplied ABAP Function Modules that accesses the metadata from SAP.

Each SAP 'object' accessed by the ABAP Function Module (Tables, Fields, Domains...) is written to a text file by the ABAP Function Module using a SAP component call GUI_DOWNLOAD.

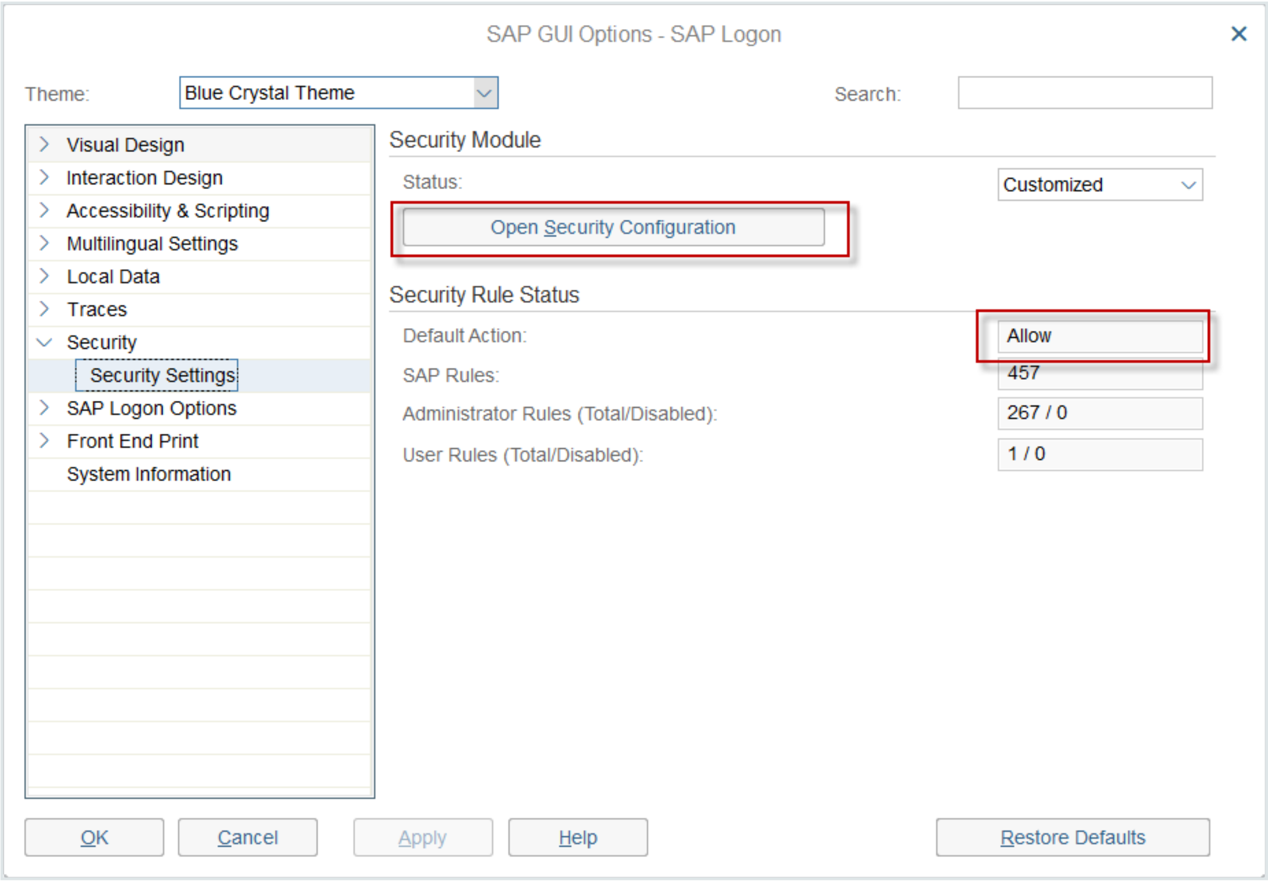
These text files will be written to the folder specified on the SAP Connection setting form (See 'Entering the SAP RFC Connection Settings' earlier in this manual).

The permissions that control the writing of these files are controlled by SAP GUI.

The SAP Logon application has an Options menu on the menu



Clicking the Salesforce button will display the Security Module.



The 'Default Action' can have three values:

- Allow – this will allow the text files written by ERP/CRM Integrator to be created in the specified folder
- Deny – this will prevent the text files from being created in the specified folder
- Ask – this will prompt the user for permission to write the file for each file to be written

We recommend that 'Allow' is selected for this setting.

Appendix F - Getting the correct SAP GUI Libraries Installed

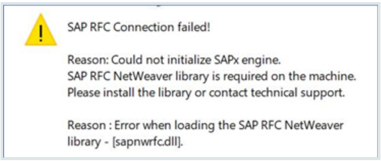
Details of the SAP GUI Libraries that are required to connect to SAP via SAP RFC Calls

In order to extract SAP metadata, ERP/CRM Integrator makes repeated RFCs (Remote Function Calls) to a Silwood-supplied Function Module on the SAP system.

On each call the Function Module extracts metadata into a file and returns it to ERP/CRM Integrator using an SAP GUI connection. ERP/CRM Integrator reads the metadata from the file, processes it and loads it into a repository. To achieve this, SAP GUI and a set of SAP RFC DLLs (Dynamic Link Libraries) need to be installed on the ERP/CRM Integrator machine.

Possible Issues

The following error may occur when attempting to perform the connection to SAP:



This error message can occur if SAP GUI is not installed on the same PC as ERP/CRM Integrator; or if it is installed, it is not being found by ERP/CRM Integrator or is not starting.

Potential Next Problem – File sapnwrfc.dll Still Cannot Be Found

If the ERP/CRM Integrator 64-bit version is being used, then this problem may be due to a mismatch between the ERP/CRM Integrator bit-size and the installed sapnwrfc.dll bit-size which prevents ERP/CRM Integrator finding the sapnwrfc.dll file.

The easiest way to tell whether ERP/CRM Integrator is 32-bit or 64-bit is by checking its installation folder:

If Safyr.exe is in c:\Program Files (x86)\Silwood\Safyr 7 it is 32-bit.

If Safyr.exe is in c:\Program Files\Silwood\Safyr 7 (x64) it is 64-bit.

Some additional installation steps will be required for the 64-bit version. The 64-bit versions of the SAP GUI DLLs required are currently not included in SAP GUI so they need to be obtained separately from SAP and installed manually.

The required 64-bit SAP RFC NetWeaver DLLs needed are:

- sapnwrfc.dll
- icudt50.dll
- icuin50.dll
- icuuc50.dll

- libicudecnumber.dll
- libsapucum.dll

The examples above are for the 7.50 DLL versions - the embedded numbers may differ for other versions. The DLLs above can be found in the SAP package named nwrfc750P_5-70002755.zip on the SAP Marketplace / Support Launchpad site. Try searching on there for downloads with the keywords "SAP NW RFC SDK" to find the current version if different. Be sure to select the correct bit-size (Windows 64-bit if using ERP/CRM Integrator 64-bit). When extracting the files from the downloaded package, the required DLLs should be in its lib subfolder.

If the correct bit-size DLLs are already installed but ERP/CRM Integrator still has a problem finding them, put the DLLs into the Safyr execution folder (normally the installation folder c:\Program Files\Silwood\Safyr 7 (x64) for 64-bit Safyr 7 or c:\Program Files (x86)\Silwood\Safyr 7 for 32-bit Safyr).

> **Note** SAP GUI 7.7 now has the 64-bit dlls available as part of the setup. If SAP GUI 7.70 or higher is to be used with ERP/CRM Integrator, it is important to select the ‘64-Bit RFC Controls’ option when installing it to get compatible 64-bit DLLs.

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