HANSAWORLD
UNIVERSITY

Enterprise by HansaWorld

SQL

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HansaWorld Ltd.

HANSAWORLD

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OBJECTIVES

This course material covers the basics of installation and setup of relational databases, specifically MS SQL Server.

After this course you should be able to

- Setup HansaWorld with SQL
- Understand the HansaWorld relational database
- Access the HansaWorld data using ODBC
- Create basic queries on HansaWorld data

INTRODUCTION

Relational Databases

Definition

A relational database is a collection of data items organized as a set of formally-described tables from which data can be accessed or reassembled in many different ways without, having to reorganize the database tables. The relational database was invented by E. F. Codd at IBM in 1970.

The standard user and application program interface to a relational database is the structured query language (SQL). SQL statements are used both for interactive queries for information from a relational database and for gathering data for reports.

MS SQL

SQL Server is a relational database management system (RDBMS) designed by Microsoft for the Enterprise environment. SQL Server runs on T-SQL (Transact SQL), a set of programming extensions from Sybase and Microsoft that add several features to standard SQL, including transaction control, exception and error handling, row processing, and declared variables.

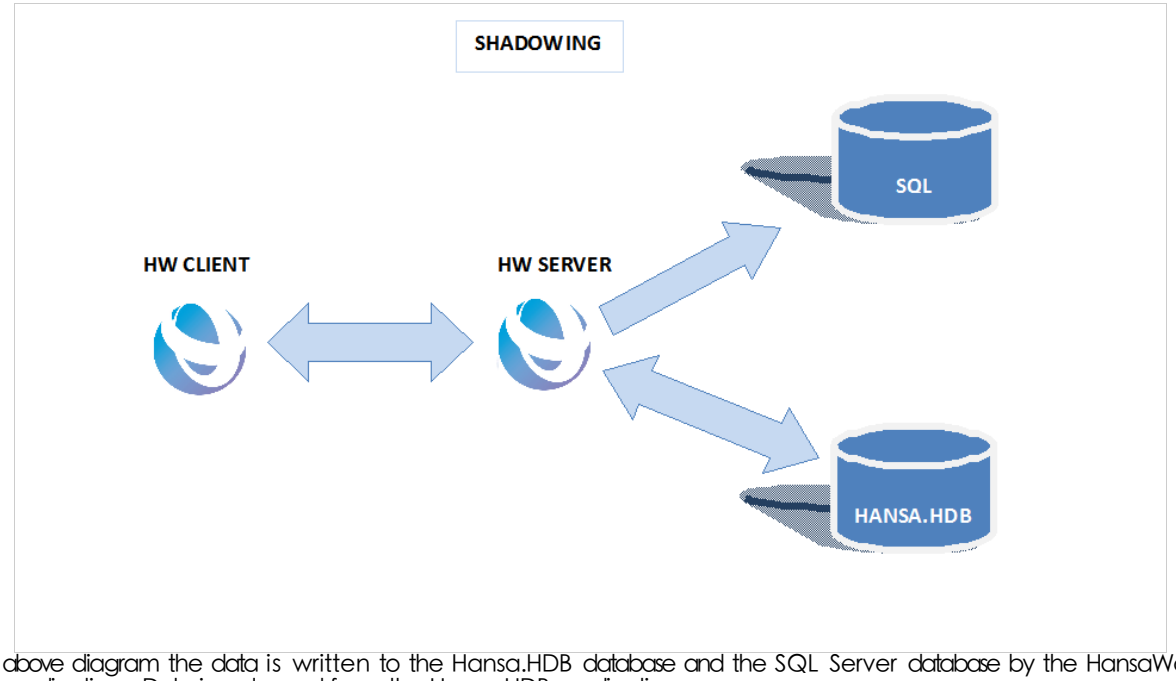
How HansaWorld works with SQL

HansaWorld can work with MS SQL using shadowing only.

In previous versions, SQL Native was supported. SQL Native enabled the MS SQL Server database to be the primary database however this is no longer supported due to performance deterioration.

Shadowing

This method involves storing all of HansaWorld data in the HansaWorld Hansa.hdb database and *some* user selected data in MS SQL. Please refer to the diagram below.



In the above diagram the data is written to the Hansa.HDB database and the SQL Server database by the HansaWorld Server application. Data is only read from the Hansa.HDB application.

When using shadowing, the data is only read from Hansa.hdb database i.e. All reports will look at data stored in the Hansa.hdb database. Any data changes made in the SQL database will not be reflected in reports from HansaWorld

application.

Advantages and Disadvantages

The advantages and disadvantages of running HansaWorld with SQL are detailed below:

Benefits of using SQL with HansaWorld

1. Data availability: Flexible use of ERP data by other applications. One might want to run external applications that require data from the HansaWorld registers.
2. Easy Reporting: HansaWorld information can be easily reported on, and presented in a variety of ways.
3. Reporting Skills: One can leverage in-house skills in reporting tools such as Crystal Reports, MS Access – potentially reducing training costs.
4. HAL Reports: There is no reliance on HansaWorld Application Language (HAL) developers to create reports on HansaWorld data.
5. Backups: The Hansa.HDB database encrypts the data stored. The HansaWorld backups are also stored in an encrypted format. The customer might want to supplement these backup measures with the SQL backup procedures.

Disadvantages/Dangers

1. External Reports: Reports created in third party applications have to be run outside the HansaWorld application.
2. Security: Access to the data is no longer controlled by HansaWorld. HansaWorld accesses the data via an ODBC connection. Access to the data is controlled by the setup of the ODBC DSN, and if not controlled, this can lead to open access to the HansaWorld data.
3. Extra skills needed: Extra skills in MS SQL Server and other reporting tools are required.
4. Licence Costs: The MS SQL Server software needs to be purchased; and there are limitations to Express version of the software that are covered later in this material.
5. Microsoft Windows: MS SQL Server databases can only be installed and setup on a Windows machine. Note, until version 7.0 it was also a requirement that Enterprise by HansaWorld be run on a windows machine.

SHADOWING

The table below details the multiple dimensions of the shadowing functionality:

	SHADOWING
HansaWorld Reporting Speed	Normal Speed Data is read from the Hansa.hdb for all Enterprise by HansaWorld reports.
Cost	The same hardware can be used if the Enterprise by HansaWorld server is running on a Windows machine. License keys for the shadowing are required. Contact your local HansaWorld office for details.
Risk	Risk of access to the data All master data is maintained by HansaWorld. Data that is changed in MS SQL will not be reflected in any Enterprise by HansaWorld reports. Additional measures need to be taken to control access to the data in SQL Server.
Complexity	Simple to setup and maintain. Only selected registers and blocks are stored in MS SQL. The average number will be 5 – 20 depending on the data requirements.
Backups	Simple to setup It is simple to set up the Standard Enterprise by Hansaworld backup procedures, and it is easy to restore from these backups if necessary.

SETUP & INSTALLATION

Express Edition vs. Full Edition

SQL Server Express Edition is free to download, free to redistribute, free to deploy, has a subset of the overall SQL Server 2005 features, and has no time limit on usage.

SQL Server has no limits on database size or scalability. Please refer to the table below for a comparison

	SQL Server 2012 Express	SQL Server 2012
Number of CPUs	1 socket/4 cores	No limit
RAM	1 GB	Operating system maximum
Maximum Database Size	10 GB	No realistic limit

HansaWorld strongly recommends the use of SQL Server (full version) as the functionality of the SQL Server Express cannot be guaranteed in future releases

CREATING SQL DB

Installation of MS SQL Server

The installation of the SQL Server software is not covered in this training material. Please refer to the installation guidelines provided by Microsoft for details on how to install the SQL Server software.

From this point on it will be assumed that:

- The installation of the SQL server has been completed in full.

- The relevant services have been installed correctly and are running automatically on start up.

- The SQL Server Management Studio has been installed and can be run from the Start>>Programs menu

Starting the SQL Service

1. To start the service go to Control Panel>>Administrative Tools>>Computer Management.
2. Click on the Services and Applications>>Services node to list the all the services.
3. Select the SQL Server Service.
4. Right Click and click Start to start the service.

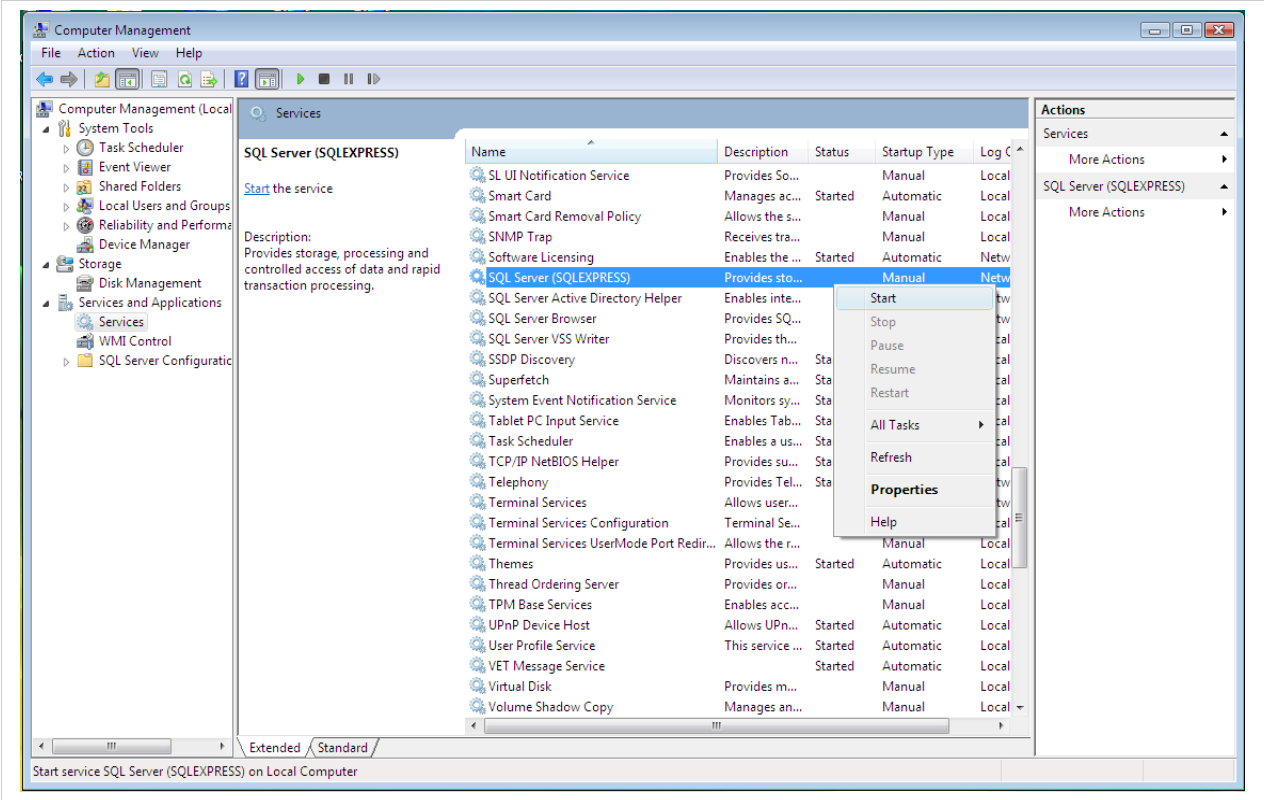


Figure 1: Starting the SQL Service

Starting the SQL Management Studio

Microsoft SQL Server Management Studio Express (SSMSE) is a free, easy-to-use graphical management tool for managing SQL Server 2005 Express Edition and SQL Server 2005 Express Edition with Advanced Services.

Microsoft SQL Server Management Studio is installed by default when installing Microsoft SQL Server Management Express.

To start the SQL Management Studio click on Start>>Programs>Microsoft SQL Server 2005>SQL Management Studio

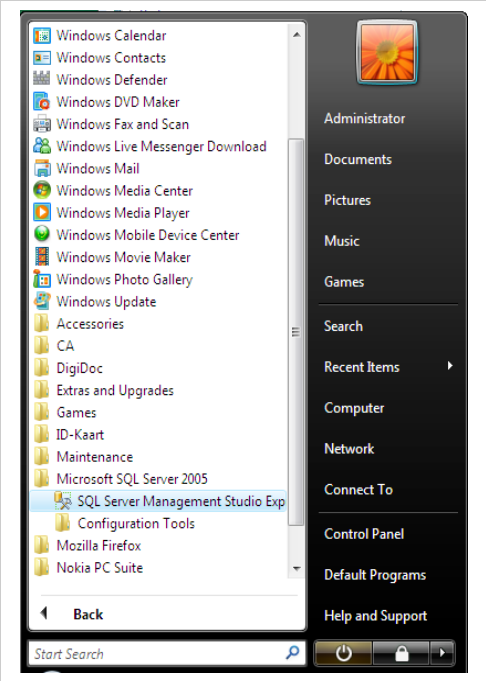


Figure 2: Starting SQL Server Management Studio

Connecting to the Server and opening the Management Studio

In the Connect to Server window Enter/Select the relevant server that you are connecting to.

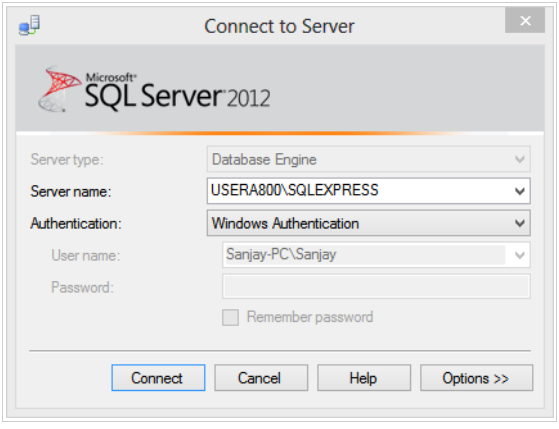


Figure 3: Login into SQL Server Management Studio – SQL Server Authentication

Connecting to Server and opening the Management Studio

In the Connect to Server window change the authentication method to SQL Server Authentication.

The default login and password is 'sa' and password is blank. This default password is defined during the installation of SQL Server.

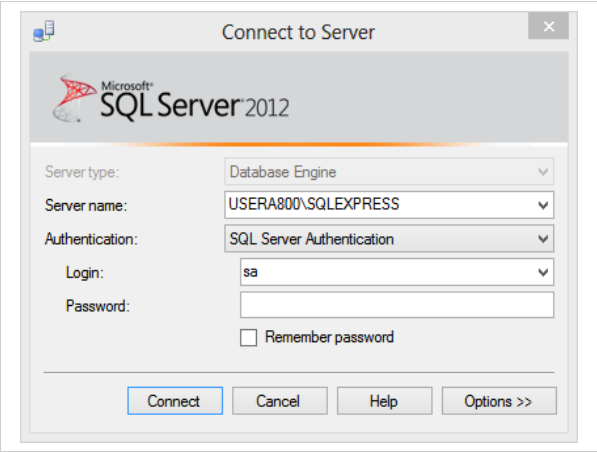


Figure 4: Login to SQL Server Management Studio - Username and Password

Creating the SQL Server Database

Within the SQL Server Management Studio create a new database.

Right click the 'Databases' node on the tree on the left and click 'New Database'.

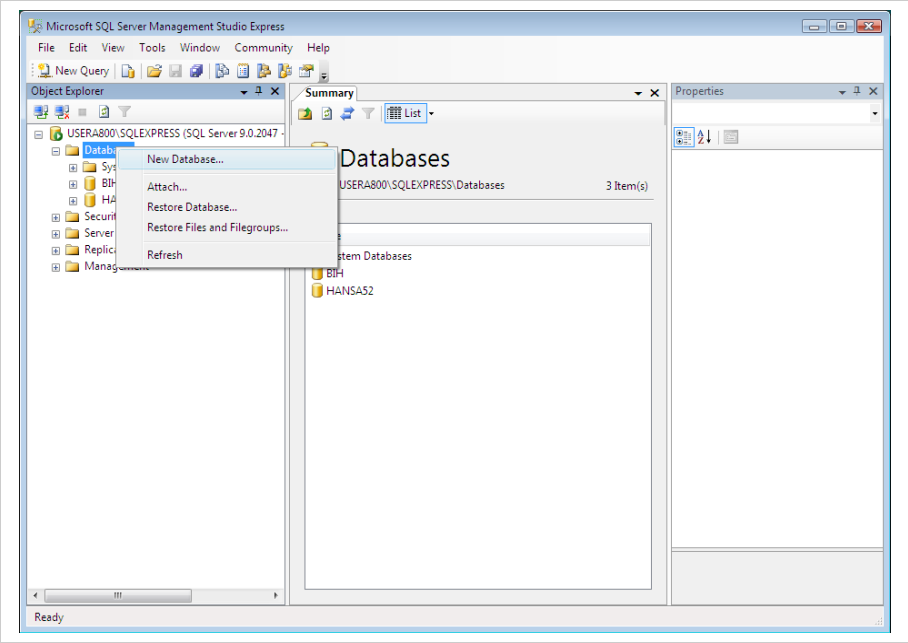


Figure 5: Creating a new SQL Database

Creating the SQL Server Database (continued)

Give the database a name, such as Hansa or Hansa53

Click on 'Ok'

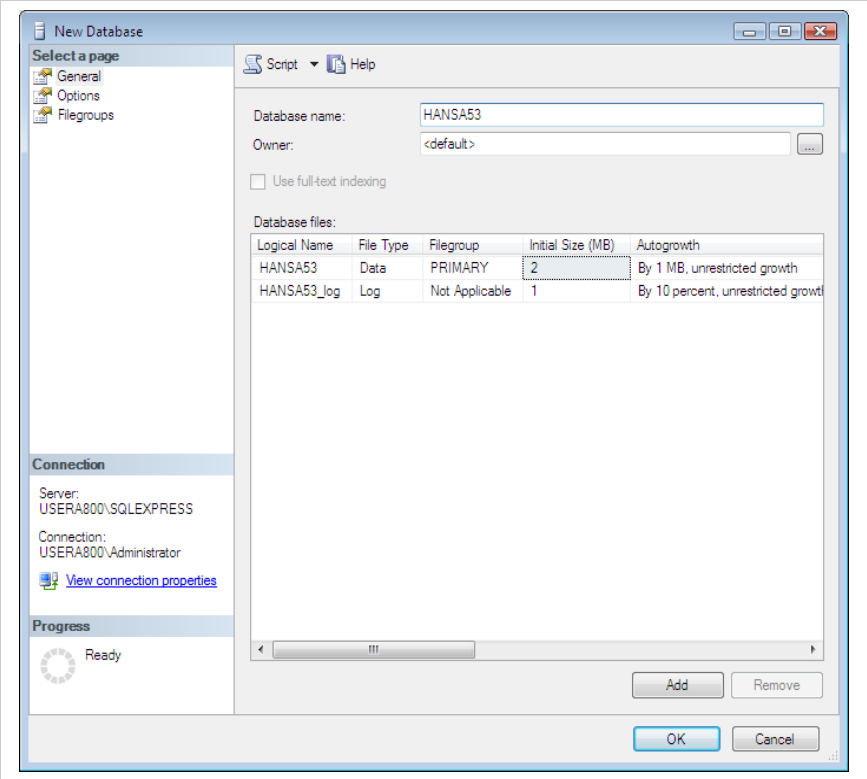


Figure 6: SQL Database Name

SETTING UP THE ODBC CONNECTION

Creating the ODBC DSN

To open the ODBC Data Source Administrator Click on Control Panel>Administrative Tools>Data sources.

If you are using a 64 bit service for Enterprise by HansaWorld then use the 64 bit ODBC manager. This should be the default ODBC Administrator.

If you are using a 32 bit service for Enterprise by HansaWorld on a 64 bit operating system then you need to use the 32 bit ODBC Administrator. This is called ODBCad32.exe. Use the search in the windows explorer to find the file.

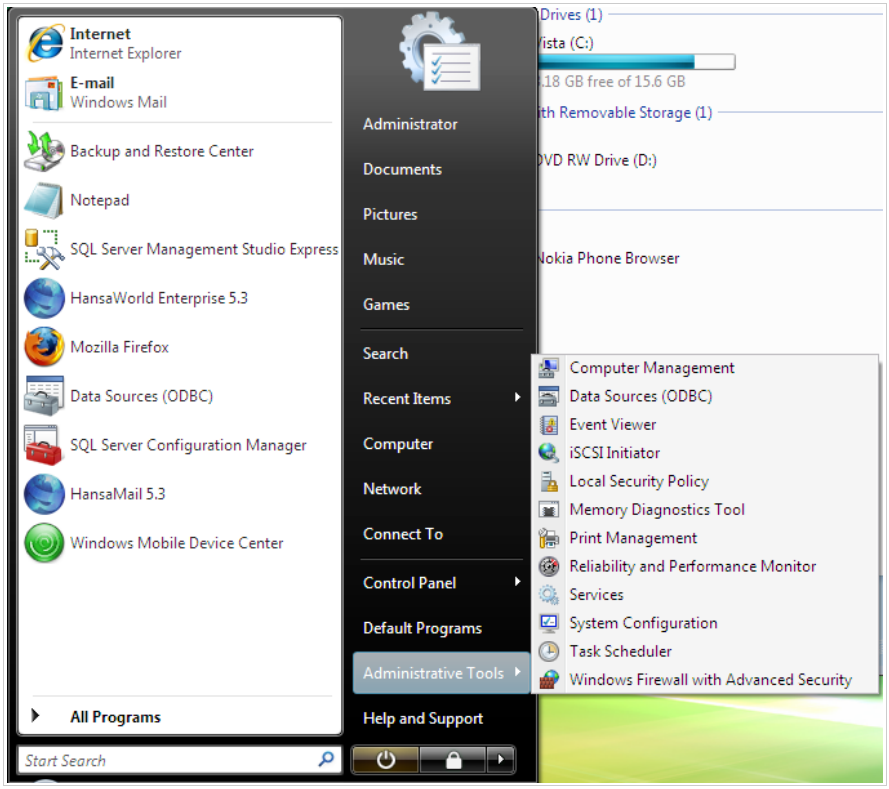
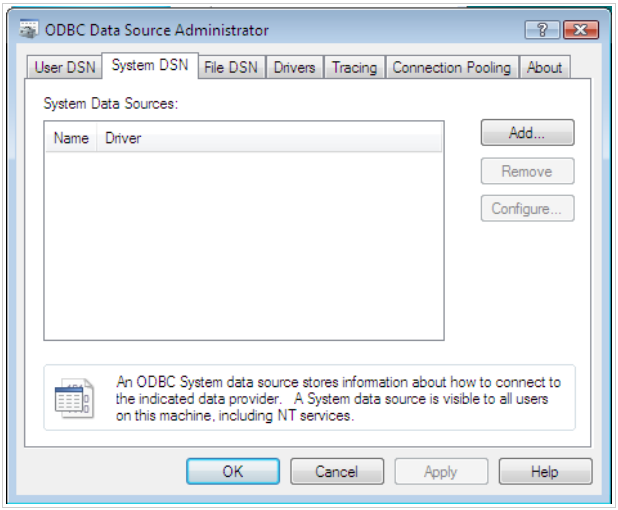


Figure 7: Starting ODBC Administrator

Creating the ODBC DSN (Continued)

Click on the System DSN tab

Click on 'Add' to create a new data source



8: Creating a new System DSN

Creating the ODBC DSN (Continued)

Select the SQL Server driver

Click 'Finish'

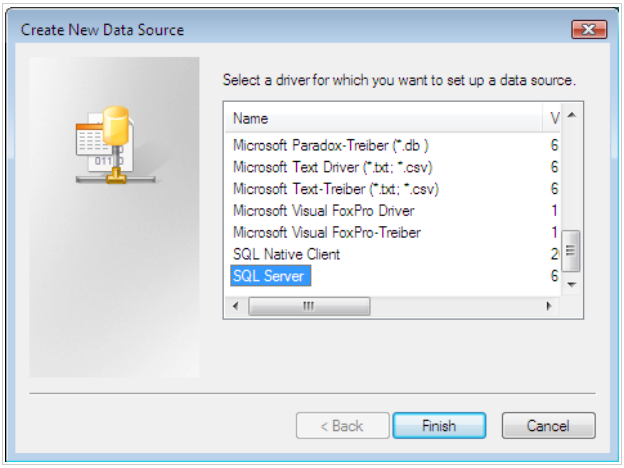


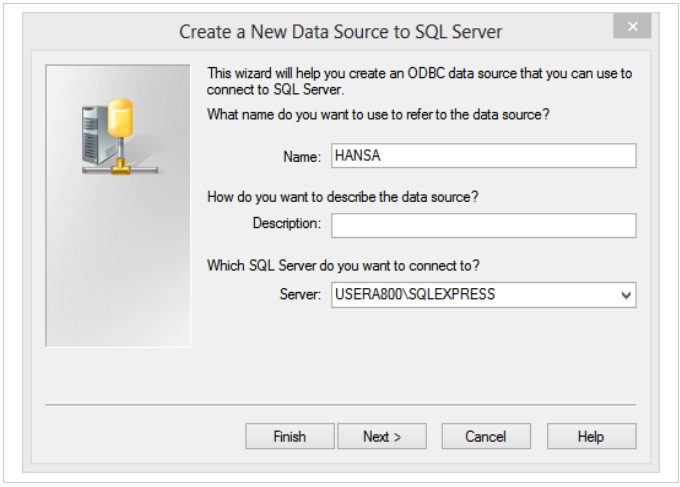
Figure 9: Setting a new SQL Server DSN

Creating the ODBC DSN (Continued)

Give the DSN a name. This name can be the same name as the SQL Server database. Note that this the name that will be used on the setting up of the link from HansaWorld to SQL.

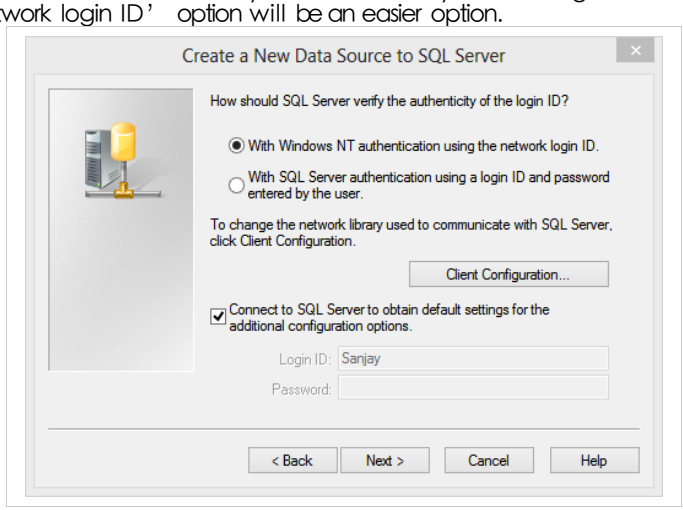
Enter a description of the DSN and database (optional)

Select the server that stores the database. If the server name is not included in the list then you can type in the name of the server as shown in the diagram below.



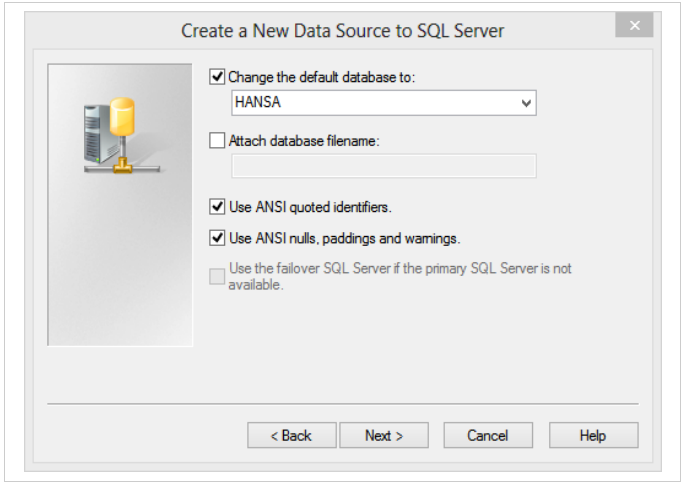
Creating the ODBC DSN (Continued)

Select how you would like SQL Server to verify the authenticity of the login. Selecting 'With Windows NT authentication using the network login ID' option will be an easier option.

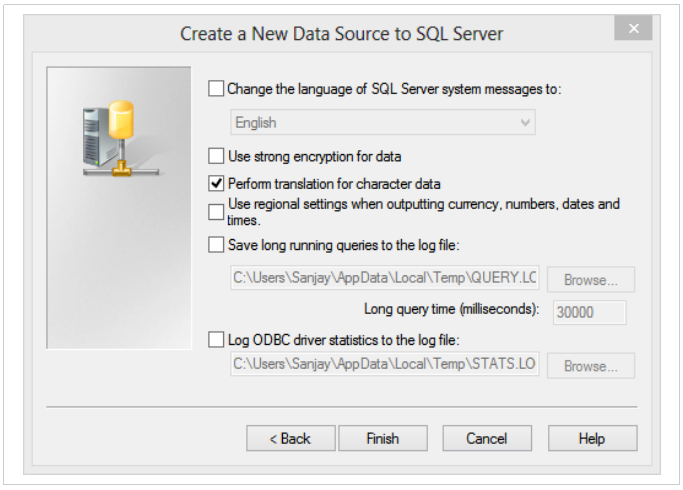


Change the default database to the database that was created earlier.

Click 'Next'

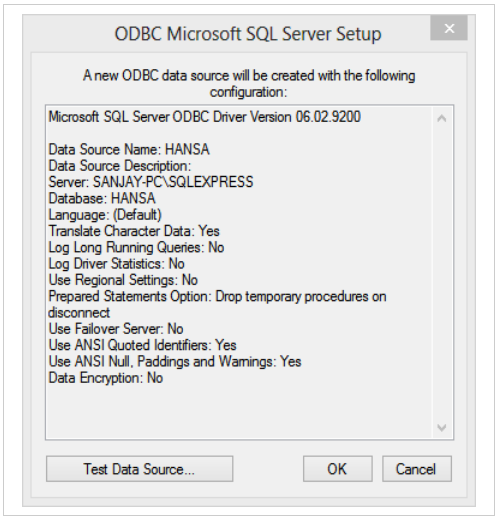


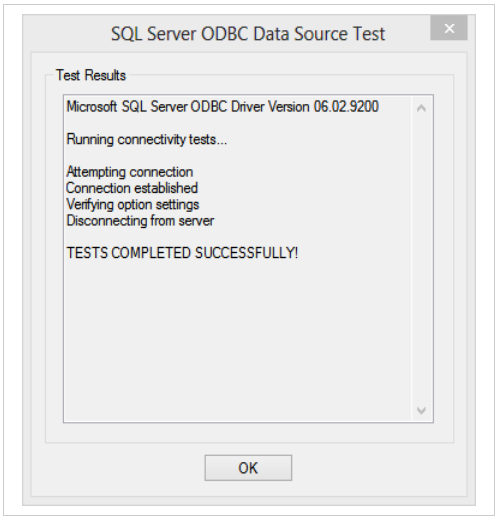
Take the default settings and click 'Finish'



Click the 'Test Data Source' button to test the connectivity to the database.

The test will fail if there are any problems with the setup. Please go back to the previous windows and make any required changes.





SQL SHADOWING SETUP

SQL Shadowing is the process by which HansaWorld writes data to a relational database and the proprietary Hansa.hdb database.

Preparation

The following is required before starting the setup of SQL Shadowing. These have been covered earlier in this document.

1. Text backup
2. SQL Database setup
3. ODBC DSN

Listing of Tables/Registers

One of the benefits of SQL Shadowing over SQL Native is the simplicity of being able to select and use only the required data. This selection involves the following processes

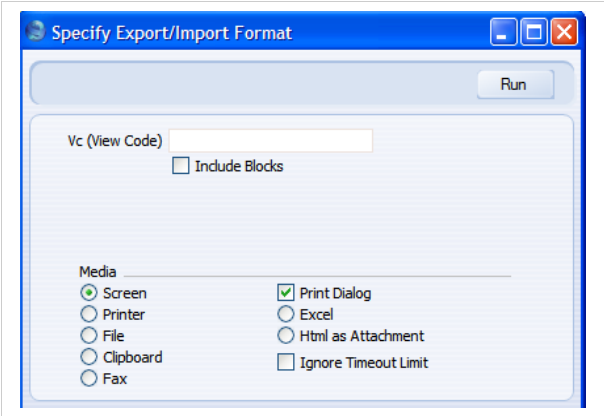
- Understanding the data requirements

2. Usually this can be done by reviewing the reporting requirements
   - Understand where in HansaWorld the data is stored
   - Create a list of registers which are required in SQL.
   - Note, blocks are not currently supported.

The Export/Import Format Report

A listing of all data stored in the HansaWorld Hansa.hdb database is listed in the Export/Import Format Report. This essentially is the data dictionary for the Hansa.hdb database.

This report is found in Technics>>Reports>>Export/Import Format.



To Run the report,

1. Leave the Vc (View Code) field blank
2. Tick the Include Blocks checkbox
3. Select Screen radio button
4. Click Run

The report will display all registers and blocks stored in HansaWorld.

Use the Search in the report feature within the Export/Import Format Report to find the registers and blocks that are required.

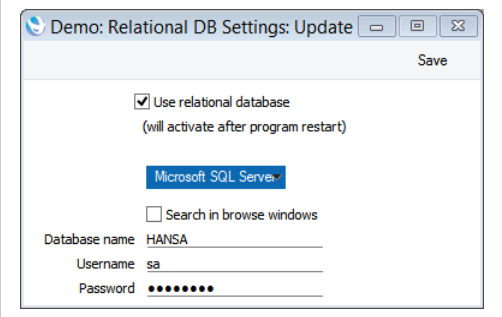
Settings

There are 2 Relational DB Registers settings which can be found in the Technics module.

Relational DB Settings

The Relational DB Settings setting can be found in the Technics module under Settings. i.e. Module>>Technics>>Settings>>Relational DB Settings.

This is setting is applicable to all HansaWorld companies.



Use relational database

This checkbox activates the Shadowing functionality. This will only be applied when the application has been restarted.

Database name

This is the name of the ODBC DSN

Username

This is the username to login into SQL Server if SQL authentication is being used.

Password

This is the password to login into SQL Server if SQL authentication is being used.

Relational DB Registers

The Relational DB Registers setting can be found in the Technics module under Settings. i.e. Module>>Technics>>Settings>>Relational DB Registers.

This setting is specific to the current company. You are able to define different registers per company.

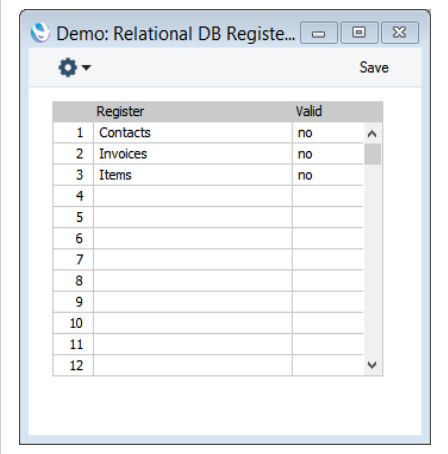
There are 2 columns in the setting.

Register

This is the register that is being or will be shadowed.

Valid

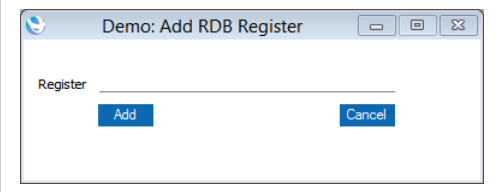
This indicates if shadowing is enabled for that register. A yes indicates that the data is being shadowed to the SQL Server database.



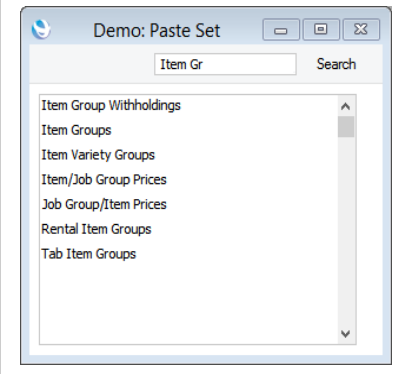
Adding Registers

To add registers to this setting do the following

- Place the cursor in the next free field in the Register column
- Click Operations>>Add Register to display the Add RDB Register window.



- Type in the Vc code of the required register if known.
- If you do not know the Vc name, paste special to bring a list of all registers.



- Select by double clicking the required register
- Click the Add button to add the register to the matrix.
- Click save to save the setting.

The Technics>>Settings>>Relational Database Registers setting is specific to the current company. When you have the multiple companies, the register/block list needs to be populated in all companies if all company data is required in SQL.

Activate Shadowing: Restart HansaWorld

The final step is to restart the application to activate the functionality. HansaWorld will look for, and connect to, the SQL database when restarted. The system will restart as normal if everything has been setup correctly.

HansaWorld Log

Once you have restarted the system, you can confirm that HansaWorld has connected to the database by looking for the "Connected to Relational Database" entry.

Building Data in the SQL Server Database

At this stage, HansaWorld is linked to the SQL database but the registers will not be shadowed yet. To start shadowing you have to build the data from the Relational DB Registers setting. This can be done as follows

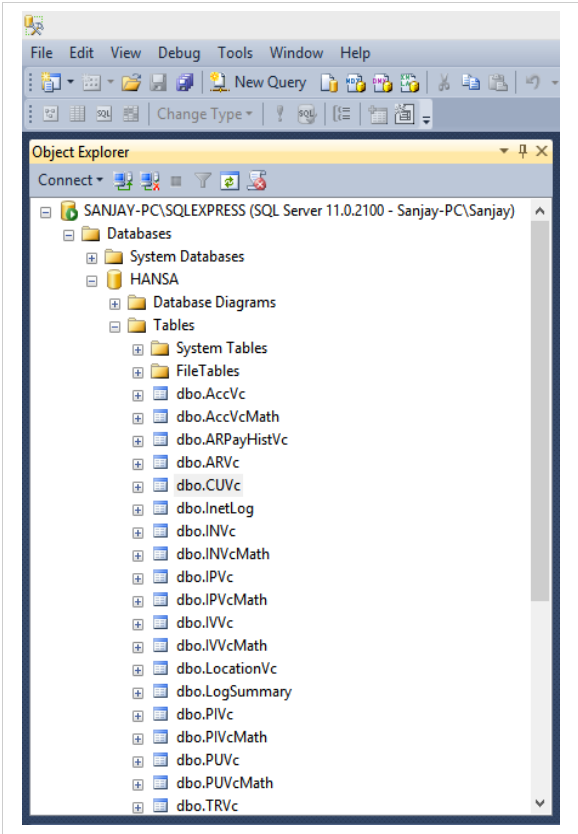
1. Open the Relational DB Registers setting.
2. Click on Operations>>Build All RDB Data.
3. This will build the data in SQL Server for all registers listed in the matrix.
4. If you only want a specific register to be built in SQL Server, then you can do this as follows.
5. Open the Relational DB Registers setting.
6. Place the cursor next to the name of the required register.
7. Click on Operations>>Build RDB Data.
8. This will build the data in SQL Server for the selected register.

After importing the text backup, you have to remember to activate the Relational database settings in Technics>>Settings>>Relational Database settings and restart the HansaWorld System.

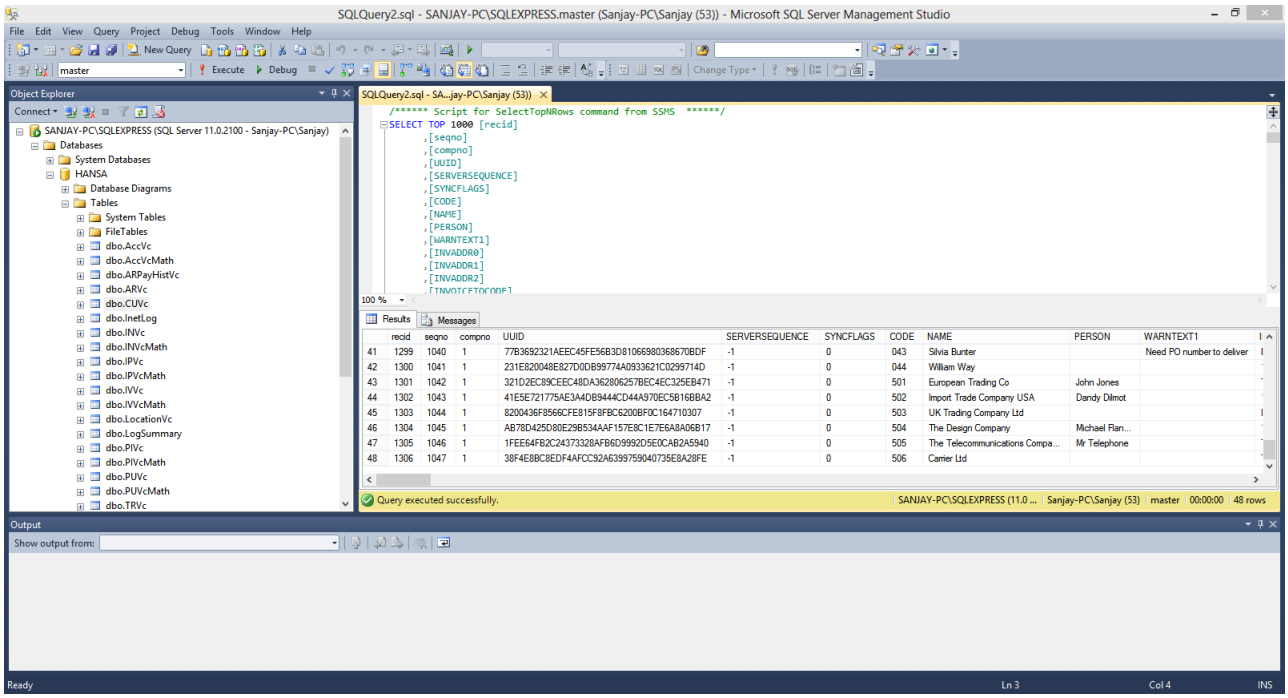
Testing

HansaWorld Shadowing will populate data in both the Hansa.hdb and SQL database. To test that the shadowing is working correctly, please follow the steps below:

- Create a new contact in the Contact register in the Enterprise by HansaWorld system.
- Login into the SQL Management Studio
- Open the database that you have connected to.
- Click on Tables and select the CuVc table

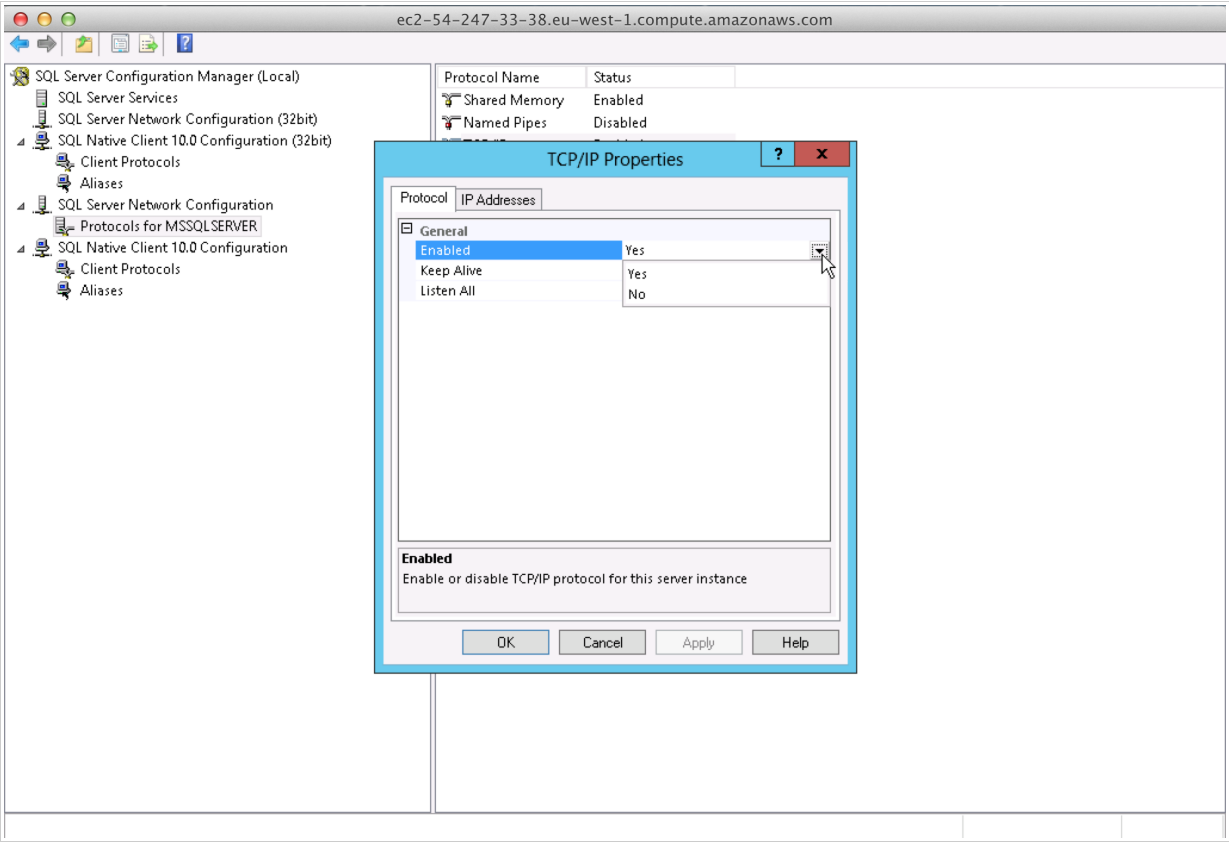


- Right Click and select "Select Top 1000 Rows"



SQL SHADOWING WITH LINUX SERVER

From version 7.0 20130404, MS SQL shadowing works in a HansaWorld server running on a Linux operating system. This section will discuss the setup needed on the Linux side. Most of the MS SQL setup is the same as described above. There are however a few special requirements for a Linux installation, will be pointed out in this section.



Additional setup on in MS SQL

TCP/IP needs to be enabled for MS SQL server. This can be done in SQL server configuration manager.

Linux server configuration

In this section we will look at the additional software that needs to be installed on the Linux server. We will also discuss how to find and amend important configuration files.

The additional software that needs to be installed from source on the Linux machine is as follows:

UnixODBC

This is a standard software system for accessing database management systems. ODBC is an industry standard, and therefore any application can query data from a database by using it.

Make sure you install a late enough version of UnixODBC. At the time of publishing this document, unixODBC-2.3.0 was the latest version.

Installing from source should also install unixODBC-devel. This is needed in order to get the correct libraries (in particular – libtdsodbc.so)

More information can be found at http://www.unixodbc.org

FreeTDS

TDS is a protocol used by client software to communicate with MS SQL server - it is an open source project.

At the time that this document was created, version TDS0.92 dev was the latest version; and either this version or later should be used.

More information can be found here: http://freetds.schemamania.org

Configuration Files

The configuration files that need amending are described below.

libtdsodbc.so

After installing the software described above there will be a libtdsodbc.so library available on server. The location of the file depends on installation. Some common locations are: /usr/local/lib or /usr/lib/odbc/ or /usr/lib or /usr/lib64.

Note down the filepath as this will be needed for configuration of the odbc.ini file.

odbc.ini

ODBC data sources are defined in this file.

The location of this file will again depend on the linux distribution and the installation of UnixODBC. Some possible locations are /etc/odbc.ini or /usr/local/etc/odbc.ini.

In image 1 you can see an example of the odbc.ini configuration file. Firstly a data source is defined, in this example we have called it MSSQLdsn. The data source needs to be configured:

driver – path to libtdsodbc.so file

server – the ip of windows server where MS SQL server is running

port – the port of MS SQL server

description – optional description of the data source

user – user of MS SQL server

password – password of the user

database – same name as for database in MS SQL server created for HansaWorld

logging – logging level

TDS_version – TDS protocol version to use

Also default driver is configured with a driver pointing to libtdsodbc.so file

Image 1 – odbc.ini configuration example

After the odbc.ini file has been set up, the connection from linux server to MS SQL database should be tested. It can be done with the isql utility.

Image 2 – isql utility example

Once you get the connection working, you can proceed with configuring the HansaWorld installation.

HansaWorld Linux server configuration

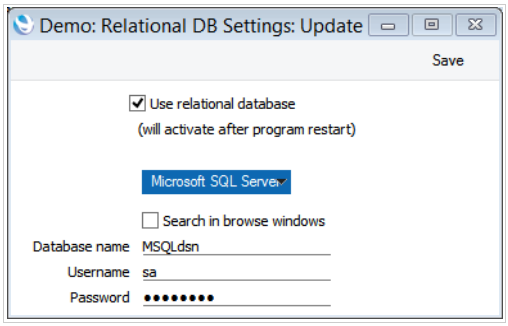
For MS SQL shadowing to work with the HansaWorld Linux server application, the RDB executable file is needed. The file can be found in the HansaWorld linux server package. If it is not available it can be provided by the local product manager.

In some cases you could get the following error message when starting up server:

./Enterprise-RDB: error while loading shared libraries: libodbc.so.1: cannot open shared object file: No such file or directory

This means that the path to the library file is missing. You can see more details with ldd utility. One way to solve this is to create a new config file in /etc/ld.so.conf.d with path to libodbc.so.1.

The next step is to configure Relational DB Setting. It is important to note that in the Database name field you enter the data source name that you set up in odbc.ini file.



Picture 3 – Relational DB Setting

After the setting is updated, the HansaWorld server should be restarted. On startup in the hansa.log file the message Connected to relational database should show up.

Now the Relational DB Registers setting can be set up as described in the SQL shadowing setup above.

QUERIES AND HANSAWORLD DATA

HansaWorld Tables and Registers

HansaWorld registers and blocks are stored within the SQL as tables.

For a listing of all tables and blocks that the fields, please refer to the Export/Import Format report.

Intro to SQL language, create and run basic queries

SQL stands for structured query language. SQL is the language by which data can be extracted and presented from a relational database.

The structure and creation of SQL statements is not covered by this material. There are many resources available on the internet covering SQL and the statements.

Using the Criteria Pane SQL Server

SQL Servers make it possible to create relatively complex SQL select statements using the criteria pane.

The Criteria pane allows you to specify query options — such as which data columns to display, how to order the results, and what rows to select — by entering your choices into a spreadsheet-like grid. In the Criteria pane you can specify:

- Columns to display, and column name aliases.
- The table that a column belongs to.
- Expressions for calculated columns.
- The sort order for the query.
- Search conditions.
- Grouping criteria, including aggregate functions to use for summary reports.
- New values for Update or Insert into queries.
- Target column names for Insert from queries.

The table below explains how each part of the criteria pane works

Column	Query type	Description
Column	All	Displays either the name of a data column used for the query or the expression for a computed column. This column is locked so that it is always visible as you scroll horizontally.
Alias	Select, Insert, From, Update, Make table	Specifies either an alternate name for a column or the name you can use for a computed column.
Table	Select, Insert, From, Update, Make table	Specifies the name of the table, or table-structured object, for the associated data column. This column is blank for computed columns.
Output	Select, Insert, From, Make table	Specifies whether a data column appears in the query output.
Sort Type	Select, Insert, From	Specifies that the associated data column is used to sort the query results, and whether the sort is ascending or descending.

Column	Query type	Description
Sort Order	Select, Insert, From	Specifies the sort priority for data columns used to sort the result set. When you change the sort order for a data column, the sort order for all other columns is updated accordingly.
Group by	Select, Insert, From, Make table	Specifies that the associated data column is being used to create an aggregate query. This grid column appears only if you have chosen Group By from the Tools menu or have added a GROUP BY clause the the SQL pane. By default, the value of this column is set to Group By, and the column becomes part of the GROUP BY clause. When you move to a cell in this column and select an aggregate function to apply to the associated data column, by default the resulting expression is added as an output column for the result set.
Criteria	All	Specifies a search condition (filter) for the associated data column. Enter an operator (the default is '=') and the value to search for. Enclose text values in single quotation marks. If the associated data column is part of a GROUP BY clause, the expression you enter is used for a HAVING clause. If you enter values for more than one cell in the Criteria grid column, the resulting search conditions are automatically linked with a logical AND. To specify multiple search condition expressions for a single database column (for example, (fname > 'A') and (fname < 'M'), add the data column to the Criteria pane twice and enter separate values in the Criteria grid column for each instance of the data column.
Or...	All	Specifies and additional search condition expression for the data column, linked to previous expressions with a logical OR. You can add more Or... grid columns by pressing the TAB key in the rightmost Or... column.
Append	Insert from	Specifies the name of the target data column for the associated data column. When you create an Insert From query, the Query and View Designer attempts to match the source to an appropriate target data column. If the Query and View Designer cannot choose a match, you must provide the column name.
New value	Update, Insert into	Specifies the value to place into the associated column. Enter a literal value or an expression.

REPORTING OPTIONS

Once you have the data in the SQL database there are many reporting options available. The data is made accessible via the ODBC DSN created earlier.

There are many reporting tools used and each have their strengths and weaknesses. Crystal Reports is a common reporting tool used reporting tool.

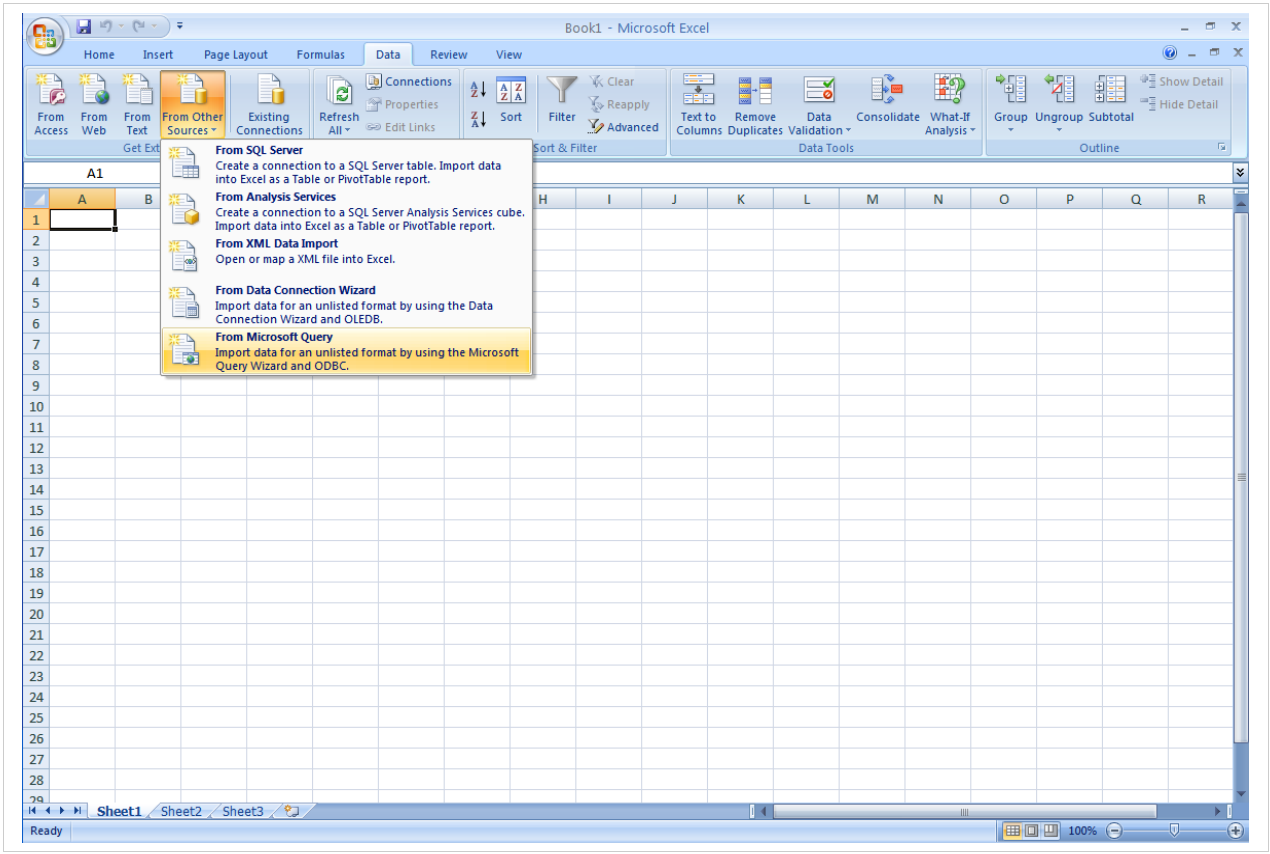
In this section 2 options are explained in further detail

Reporting from MS Excel using HansaWorld data

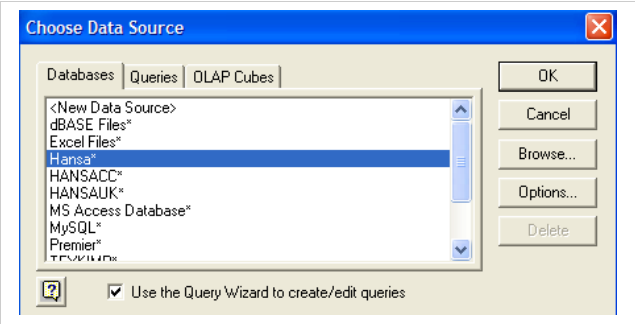
You are able to access the HansaWorld data in the MS SQL database from Excel.

To access the data do the following

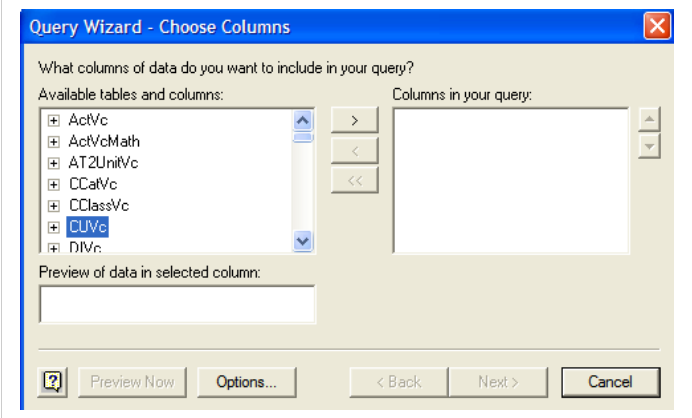
1. Data>>From Microsoft Query (See image below). Note, this is Excel 2007. In earlier versions of Excel a similar option can be found under the Data menu option



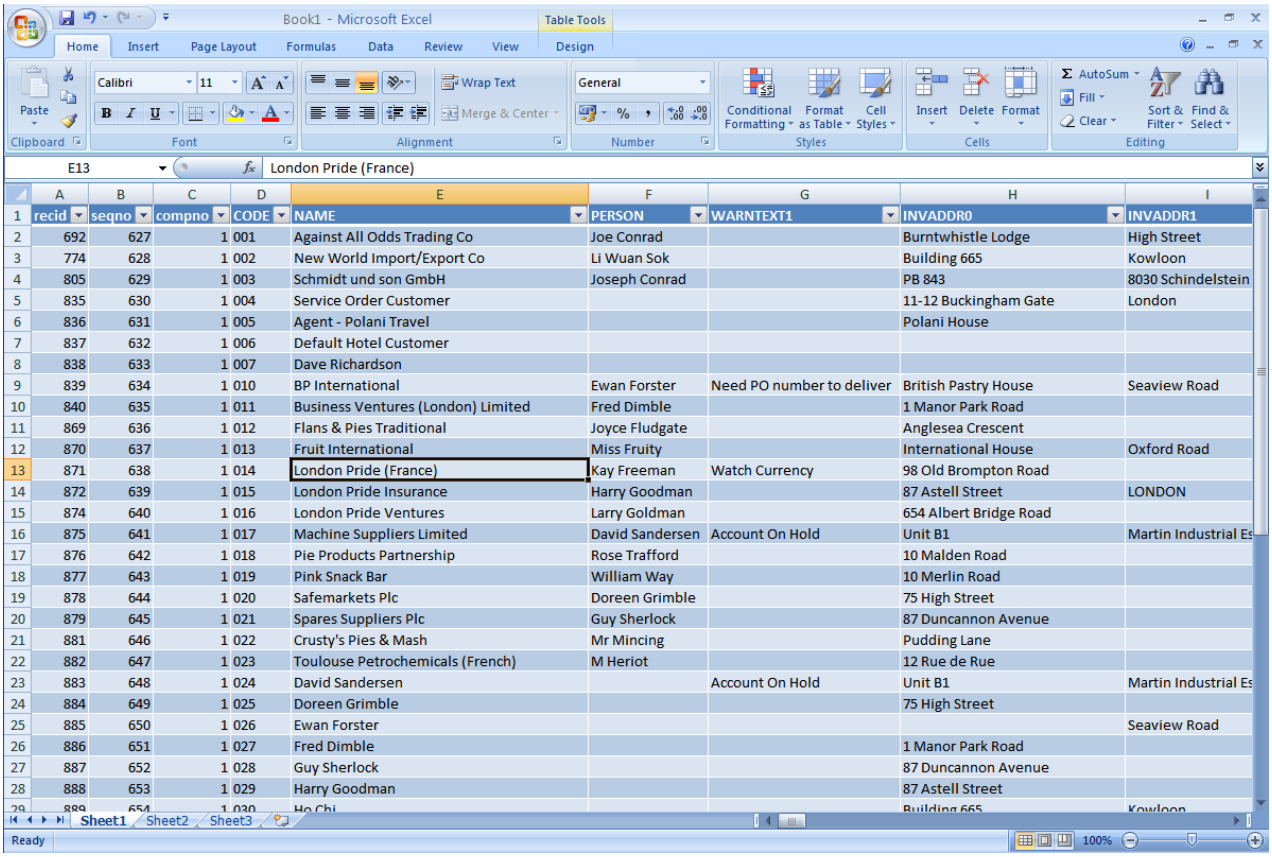
2. In the Choose Data Source window select the relevant ODBC DSN



3. In the Query Wizard window Select the table that you wish to report on and click the arrow button to select the data that you would like to be brought from the SQL database



4. Go through the remaining options by clicking Next
5. Select the sheet that you would like the data to be brought into
6. The data will be brought into Excel (See below)



	recid	seqno	compno	CODE	NAME	PERSON	WARNTEXT1	INVADDR0	INVADDR1
2	692	627	1	001	Against All Odds Trading Co	Joe Conrad		Burntwhistle Lodge	High Street
3	774	628	1	002	New World Import/Export Co	Li Wuan Sok		Building 665	Kowloon
4	805	629	1	003	Schmidt und son GmbH	Joseph Conrad		PB 843	8030 Schindelstein
5	835	630	1	004	Service Order Customer			11-12 Buckingham Gate	London
6	836	631	1	005	Agent - Polani Travel			Polani House	
7	837	632	1	006	Default Hotel Customer				
8	838	633	1	007	Dave Richardson				
9	839	634	1	010	BP International	Ewan Forster	Need PO number to deliver	British Pastry House	Seaview Road
10	840	635	1	011	Business Ventures (London) Limited	Fred Dimble		1 Manor Park Road	
11	869	636	1	012	Flans & Pies Traditional	Joyce Fludgate		Anglesea Crescent	
12	870	637	1	013	Fruit International	Miss Fruity		International House	Oxford Road
13	871	638	1	014	London Pride (France)	Kay Freeman	Watch Currency	98 Old Brompton Road	
14	872	639	1	015	London Pride Insurance	Harry Goodman		87 Astell Street	LONDON
15	874	640	1	016	London Pride Ventures	Larry Goldman		654 Albert Bridge Road	
16	875	641	1	017	Machine Suppliers Limited	David Sandersen	Account On Hold	Unit B1	Martin Industrial Es
17	876	642	1	018	Pie Products Partnership	Rose Trafford		10 Malden Road	
18	877	643	1	019	Pink Snack Bar	William Way		10 Merlin Road	
19	878	644	1	020	Safemarkets Plc	Doreen Grimble		75 High Street	
20	879	645	1	021	Spares Suppliers Plc	Guy Sherlock		87 Duncannon Avenue	
21	881	646	1	022	Crusty's Pies & Mash	Mr Mincing		Pudding Lane	
22	882	647	1	023	Toulouse Petrochemicals (French)	M Heriot		12 Rue de Rue	
23	883	648	1	024	David Sandersen		Account On Hold	Unit B1	Martin Industrial Es
24	884	649	1	025	Doreen Grimble			75 High Street	
25	885	650	1	026	Ewan Forster				Seaview Road
26	886	651	1	027	Fred Dimble			1 Manor Park Road	
27	887	652	1	028	Guy Sherlock			87 Duncannon Avenue	
28	888	653	1	029	Harry Goodman			87 Astell Street	
29	889	654	1	030	Ho Chi			Building 665	Kowloon

7. You are able to now use the standard functionality within Excel to report on the data. Pivot tables are particularly powerful.

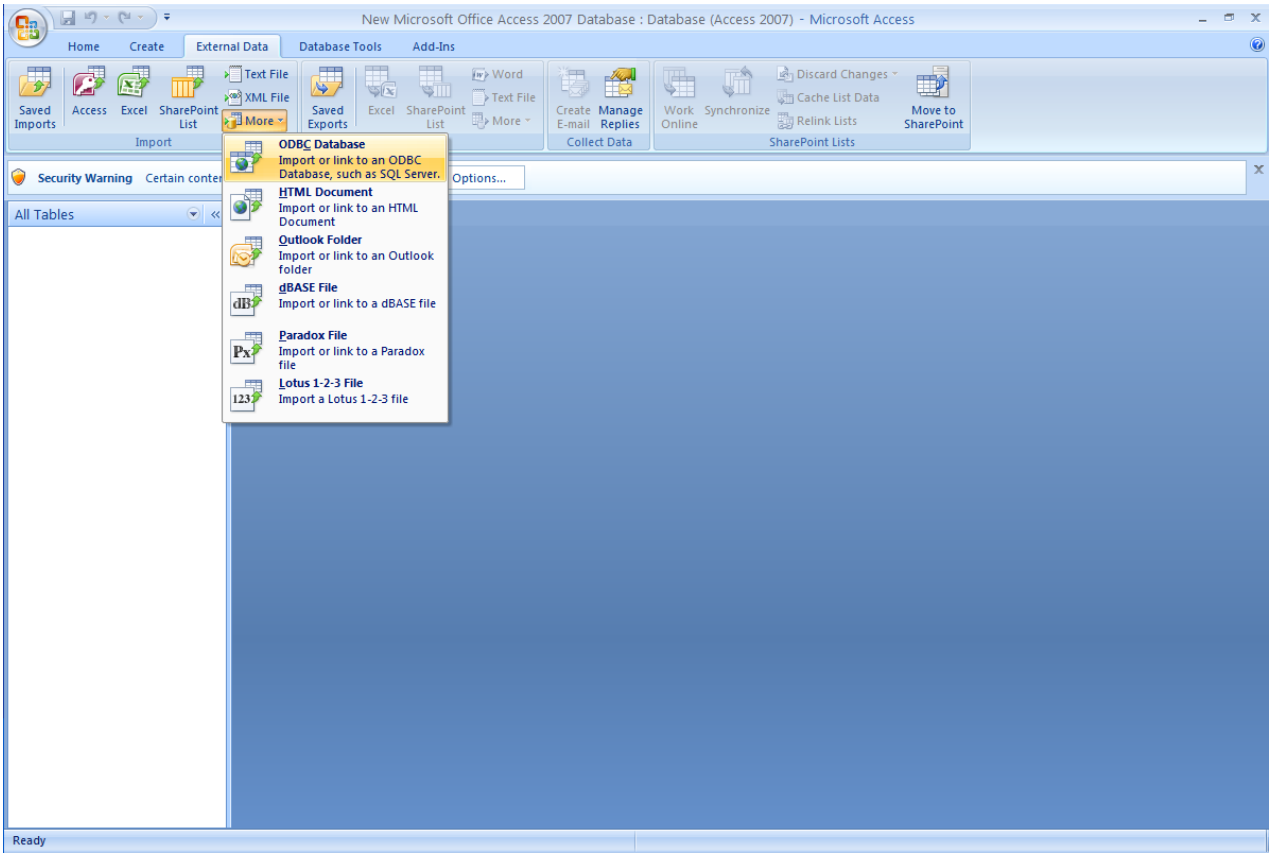
There is a danger of writing back to the database in Excel. This is dependent on how the ODBC DSN has been setup and how the authentication to the database is managed. It is therefore highly recommended that these issues be dealt with before giving access to the database via Excel.

Reporting from MS Access using HansaWorld data

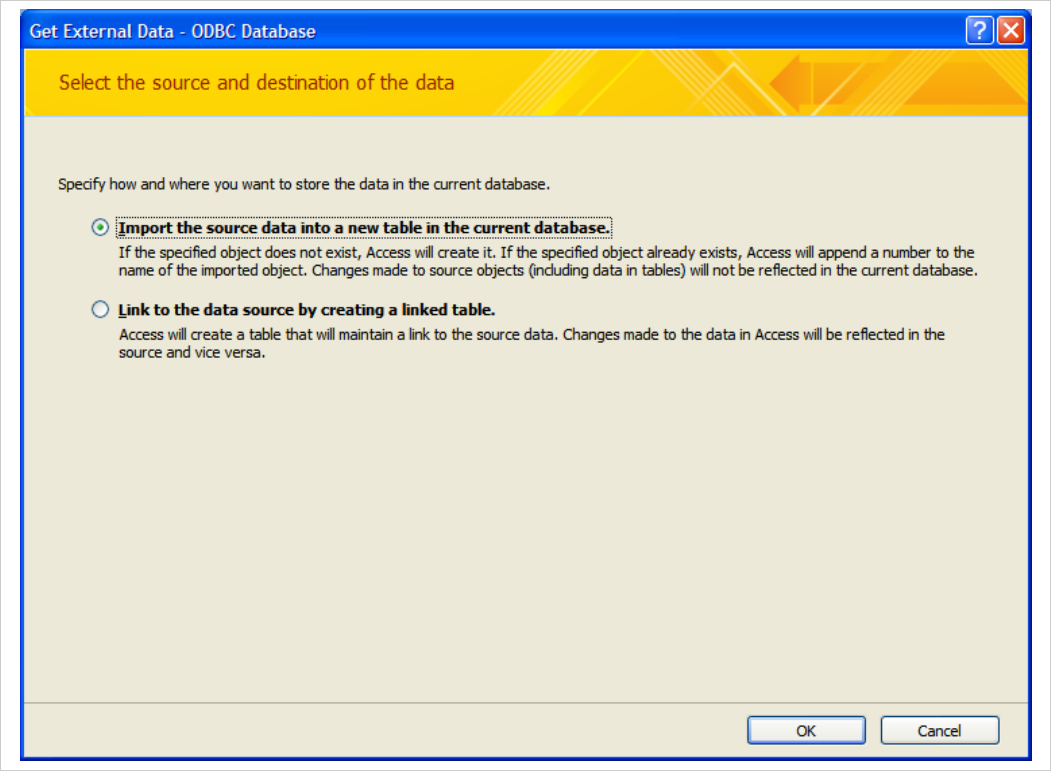
You are able to access the HansaWorld data in the MS SQL database from MS Access.

To access the data do the following

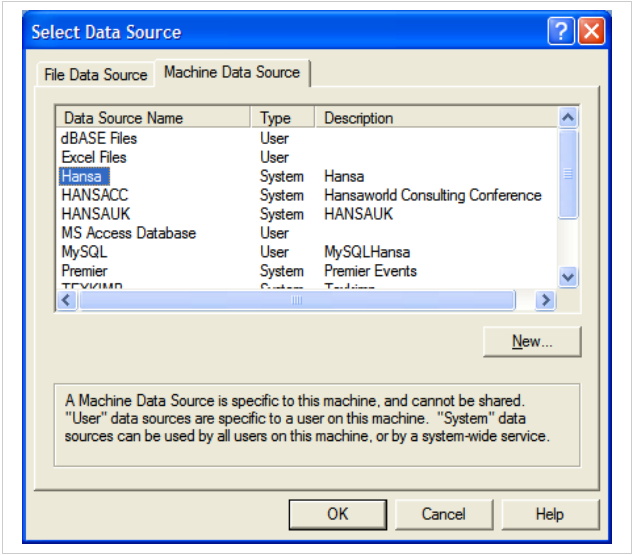
- Create a new database in MS Access
- Click on External Data>More>ODBC Database (see image below)



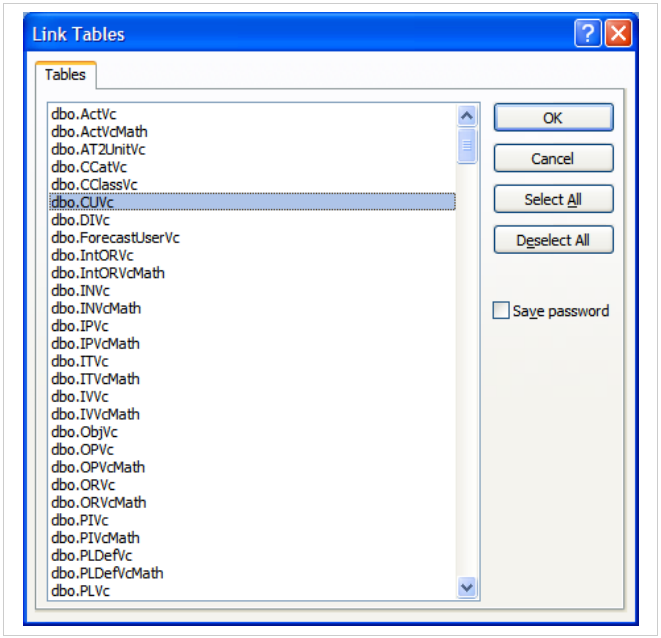
- Select either to import data from the data source or to link to the data by creating a linked table. The advantage of creating a linked table is that the data is always up to date and does not need to be refreshed.



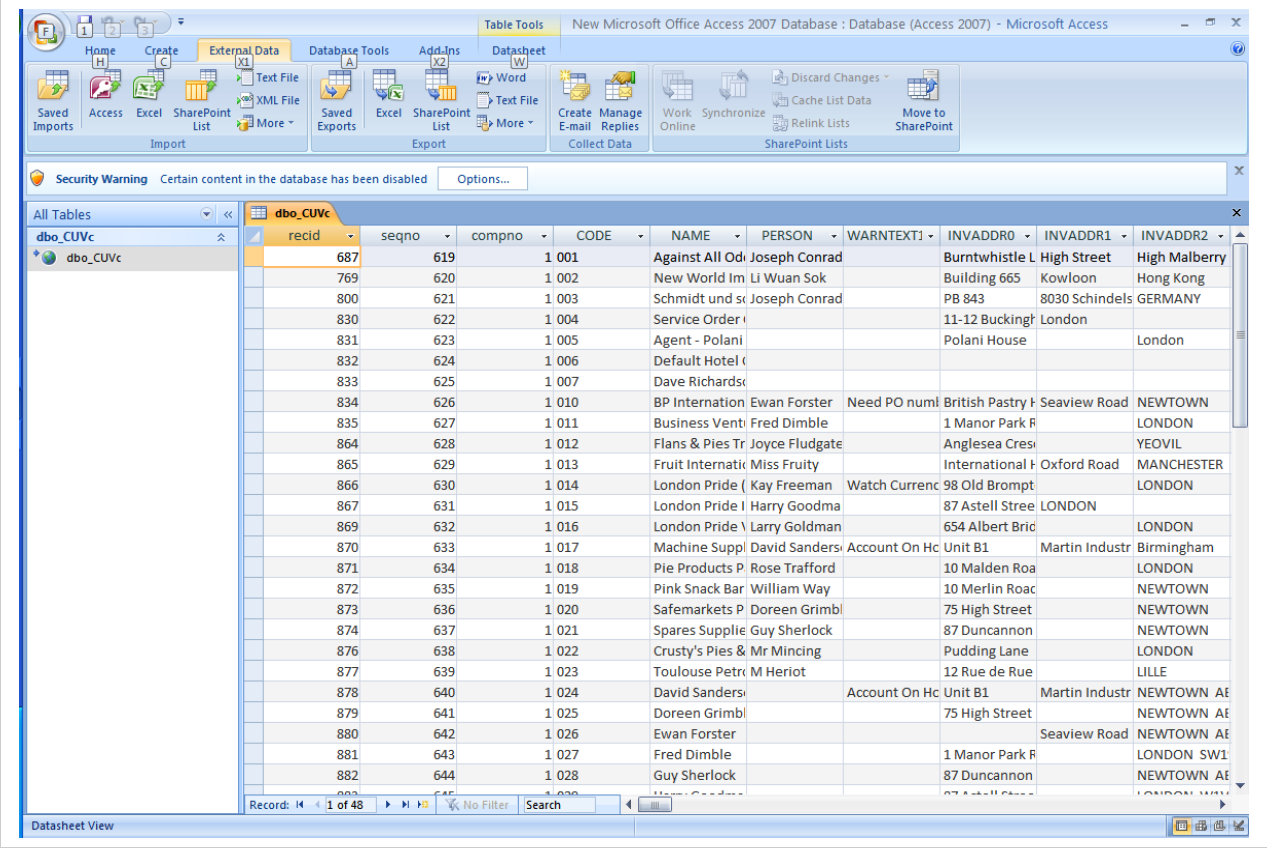
- Select the data source which is the ODBC DSN created earlier



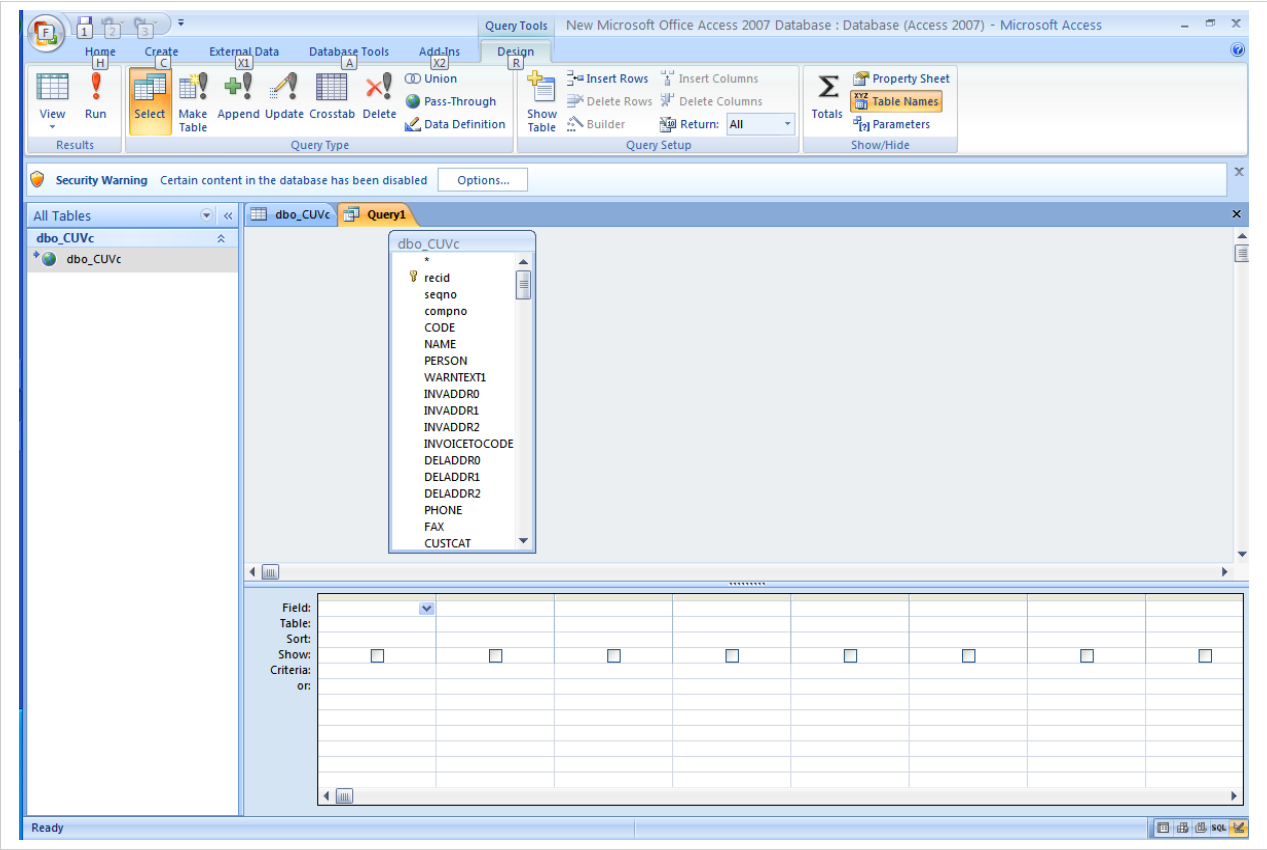
- Select the tables that you wish to import or link to



- The tables will be made available in Access (See below)



- The query designer can be used to easily create new queries (see below). The interface is similar to the criteria pane available through the SQL Server Management Studio. Please refer to the MS Access Help for further detail.


Query Tools
New Microsoft Office Access 2007 Database : Database (Access 2007) - Microsoft Access
Home
Create
External Data
Database Tools
Add-Ins
Design
View
Run
Select
Make Table
Append
Update
Crosstab
Delete
Union
Pass-Through
Data Definition
Results
Query Type
Show Table
Insert Rows
Delete Rows
Builder
Insert Columns
Delete Columns
Return:
All
Query Setup
Totals
Property Sheet
Table Names
Parameters
Show/Hide
Security Warning
Certain content in the database has been disabled
Options...
All Tables
dbo_CUVc
dbo_CUVc
Query1
dbo_CUVc
recid
seqno
compno
CODE
NAME
PERSON
WARNTEXT1
INVADDR0
INVADDR1
INVADDR2
INVOICETOCODE
DELADDR0
DELADDR1
DELADDR2
PHONE
FAX
CUSTCAT
Field:
Table:
Sort:
Show:
Criteria:
or:
Ready

APPENDIX

Terminology between different versions of english language

The language used in this material is American English. There can be slight differences between other versions of the English language, which can lead to confusion. This table should help to clear these up. It has been sorted alphabetically.

British	USA	Canada	Australia + New Zealand	Singapore
Cheque	Check	Cheque	Cheque	Cheque
Colour/coloured	Color/colored	Colour/coloured	Colour/coloured	Colour/coloured
Credit Note(CN)	Credit Memo (CN)	Credit Memo (CM)	Credit Note (CN)	Credit Note
Dialogue	Dialog			
Instalment	Installment			
Jewellery	Jewelery	Jewellery	Jewellery	Jewellery
Licence (noun)	License	Licence	Licence	Licence
Mileage Claim	Miles	Way Lists	Mileage Claim	Mileage Claim
Miles	Miles	KM	KM	KM
Mobile	Cell	Mobile	Mobile	Mobile
Nominal Ledger (NL)	General Ledger (GL)	General Ledger (GL)	General Ledger (GL)	General Ledger (GL)
Post Code	ZIP Code	Post Code	Post Code	Post Code
Purchase Ledger	Payable (PL = AP)	Payable (PL = AP)	Purchase Ledger	Purchase Ledger
Sales Ledger	Receivable (SL=AR)	Receivable (SL=AR)	Sales Ledger	Sales Ledger
Salesman	Salesperson	Salesperson	Salesman	Salesperson
Stock	Inventory	Inventory	Stock	Inventory
Stocktake	Inventory Count	Inventory Count	Stocktake	Inventory Count
Stock Depreciation	Inventory Adjustment	Inventory Adjustment	Stock Depreciation	Inventory Adjustment
Supplier	Vendor	Vendor	Supplier	Vendor
VAT	Sales Tax or Tax	Tax (ideally GST/PST)	GST	GST/SST/HST