

Section 5



CRYSTAL REPORTS
For SAP Business One

Understanding the Business One Data Model & Data Source

Understanding the Business One Database Structure

- Use the View>System Information to see the table and field names

File Edit View Data Goto Modules

User-Defined Fields Ctrl+Shift+U
System Information Ctrl+Shift+I
Pickers Display
Indicator Display
Restore Column Width
Fit Column Width
Legend Ctrl+L

Business Partner Master Data

Code C20000 Customer
Name Norm Thompson
Foreign Name
Group Construction
Currency US Dollar
Federal Tax ID US25-987634

Account Balance 21,194.53
Deliveries -328.50
Orders 57,272.14
Opportunities 2

Local Currency

General Contact Persons Addresses Payment Terms Payment System Accounting Properties Remarks

Tel 1 (619) 565-7676
Tel 2 503.345-1234
Mobile Phone
Fax
E-Mail
Web Site
Shipping Type Federal Express EM
Password
Factoring Indicator
Project Government Works

Contact Person Norm Thompson
ID No. 2
Remarks
Sales Employee Brad Thompson
BP Channel Code
Technician Buyer, Fred
Territory

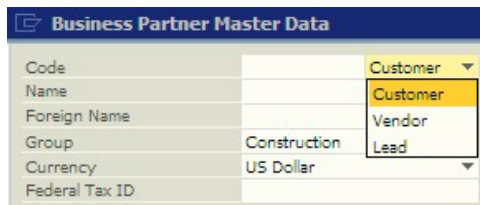
Active
On Hold

OK Cancel Related Service Calls Activity Related Activities

BP Name (100 Characters) 09/24/2008
Norm Thompson [Form=134 Item=7 Pane=0 Variable=1 OCRD/CardName] 9:22AM

Business One Database Structure

- Distinguish between related tables and a field with multiple values:



The screenshot shows the 'Business Partner Master Data' form. The 'CardType' dropdown menu is open, displaying three options: 'Customer', 'Vendor', and 'Lead'. The 'Customer' option is currently selected.

3 possible values: C, S or L

OCRD.CardType



The screenshot shows the 'Business Partner Master Data' form. The 'Group' dropdown menu is open, displaying a list of categories: 'Construction', 'Customers', 'Distributors', 'Government', 'High Tech', 'Large Accounts', 'Non-Profits', 'Production', 'Small Accounts', and 'Define New'. The 'Define New' option is currently selected.

Define New – indicate a related table

OCRG.GroupName

Link (join) tables OCRD to OCRG
where OCRD.GroupCode = OCRG.GroupCode

The Complete Database Reference

- Use the Database Tables Reference help file of the Business One Software Development Kit (SDK)
- Filename: REFDB.chm
- Organized by Business One module
- Complete table reference with data types, size, defaults and constraints (values)
- Also contains Primary Key information for table joins

HTML Help

SAP Business One SDK 8.6 - Database Tables Reference

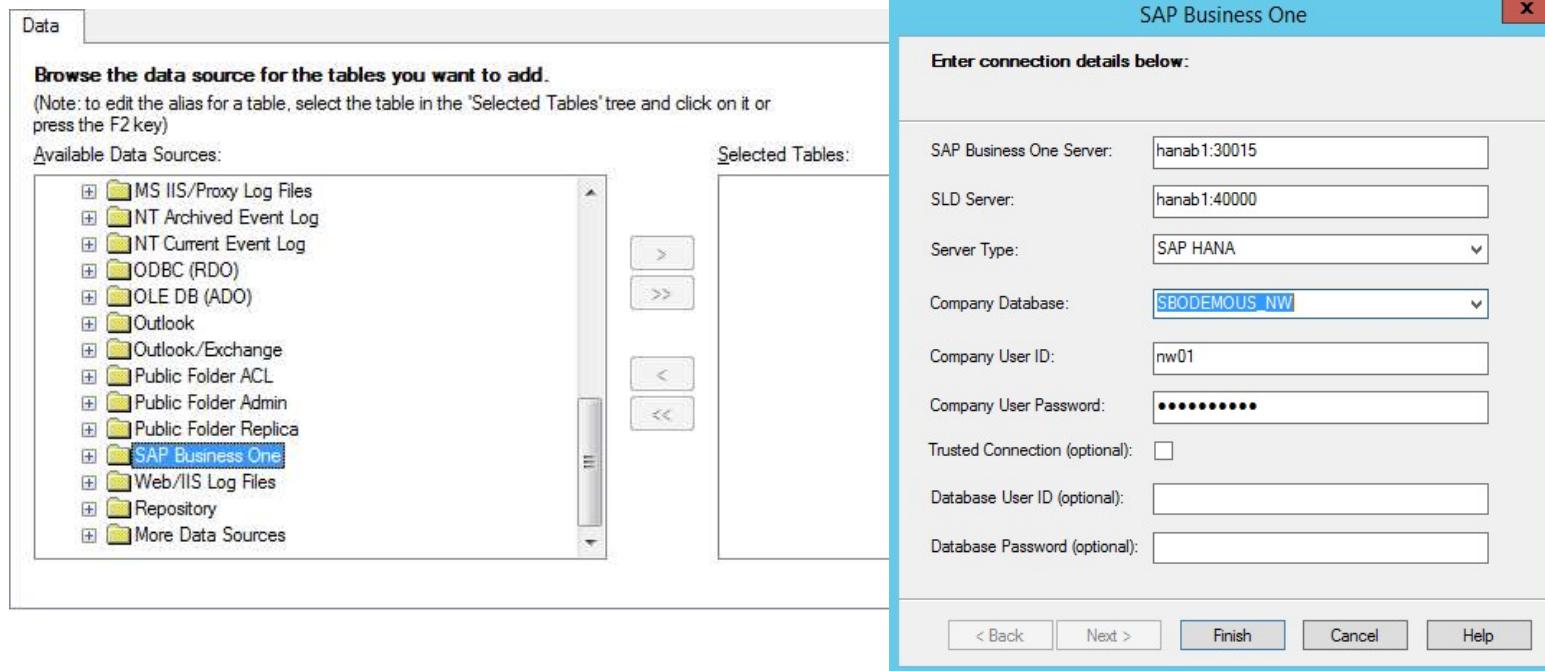
A/R Invoice

Table name: OINV

Field	Description	Type	Size	Related	Default Value	Constraints
DocEntry	Internal Number	Int	11	-		
DocNum	Document Number	Int	11	-		
DocType	Document Type	VarChar	1	-	I	I Item
						S Service
CANCELED	Cancelled	VarChar	1	-	N	Y Yes
						N No
Handwritten	Manual Numbering	VarChar	1	-	N	Y Yes
						N No
Printed	Printed	VarChar	1	-	N	Y Copy
						N Original
						A Amended
DocStatus	Document Status	VarChar	1	-	O	O Open
						C Closed
InvntSttus	Warehouse Status	VarChar	1	-	O	O Open

Crystal Reports Data Source

- Each crystal report must have at least one Data Source
- Release 2005/2007 Crystal used “OLE DB (ADO)” Data Source (*still supported in 8.8)
- Crystal Reports for SAP Business One has new Data Source “SAP Business One”
- SAP Business One source will connect via the license server (B1 user-id) OR database user-id
- For security, B1 User-id is preferred and maybe required by your database administrator



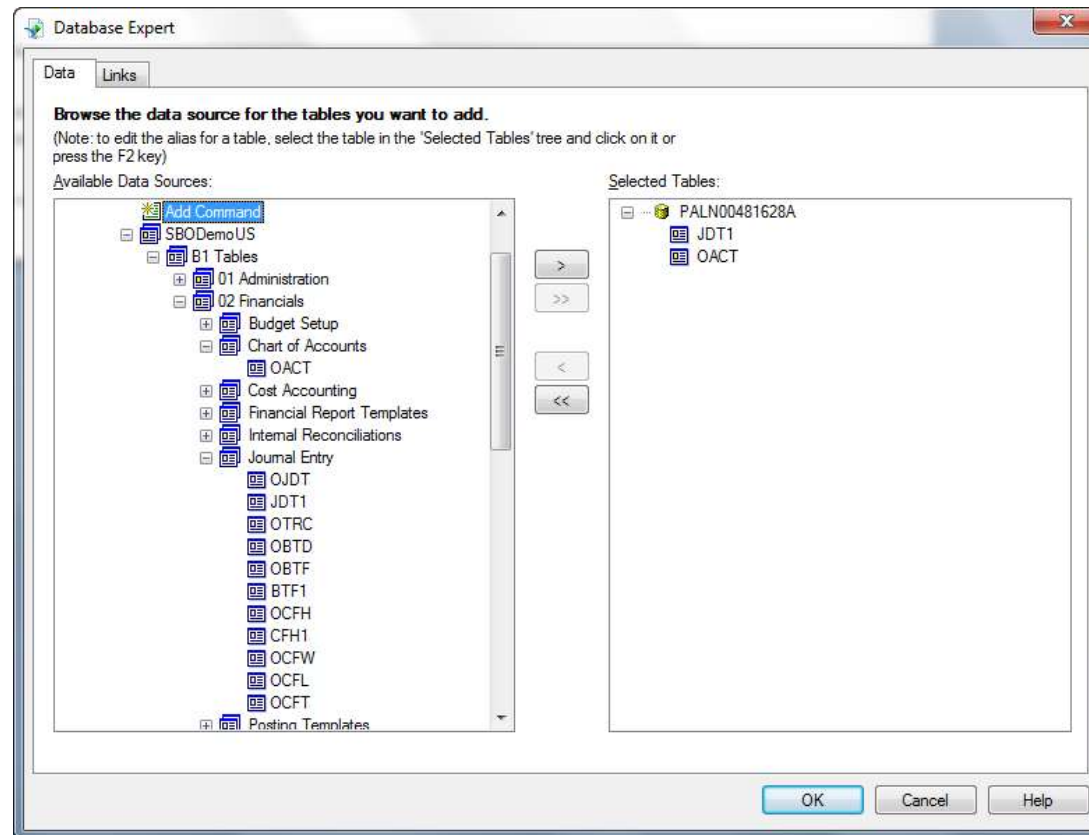
Make New Connections

- If no connections exist
- Create New Connection > SAP Business One
- Click on SAP Business One
- Enter connection details for connecting to your Business One database (If SQL...)
 - SQL Server Name
 - License Server Name and Port
 - Database Version (MSSQL2005/2008)
 - Company Database Name
 - Business One User ID & Password
- Once the connection is made you will see your company database name
- Expand that and “B1 Tables” to start selecting your tables for your report

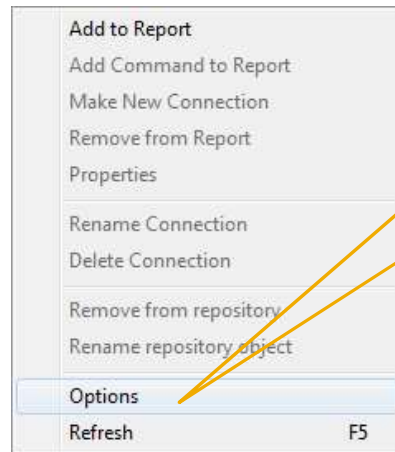
The image shows two overlapping windows from the SAP Business One software. The background window is the 'SAP Business One' connection wizard, titled 'Enter connection details below:'. It contains several input fields: 'SAP Business One Server' (hanab1:30015), 'SLD Server' (hanab1:40000), 'Server Type' (SAP HANA), 'Company Database' (SBODEMOUS_NW), 'Company User ID' (nw01), 'Company User Password' (masked with dots), 'Trusted Connection (optional)' (unchecked), 'Database User ID (optional)', and 'Database Password (optional)'. At the bottom are buttons for '< Back', 'Next >', 'Finish', and a partially visible 'Cancel' button. The foreground window is a 'Data' dialog titled 'Browse the data source for the tables you want to add.' It includes a note about editing aliases and a tree view of 'Available Data Sources'. The tree is expanded to 'SBODemoUS' > 'B1 Tables'. Under 'B1 Tables', '02 Financials' is expanded, and '02.01 Chart of Accounts' is selected, with 'DACT G/L Accounts' highlighted. Navigation buttons (>, >>, <, <<) are on the right.

Selecting Objects from a Data Source

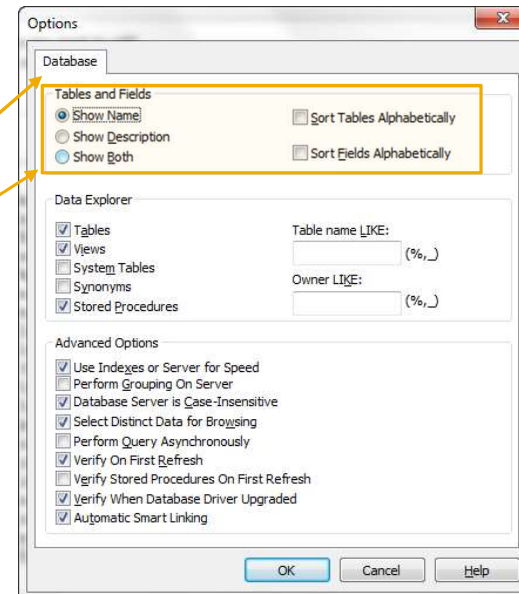
- Once Connection is defined or selected, you can select tables/views from the data source



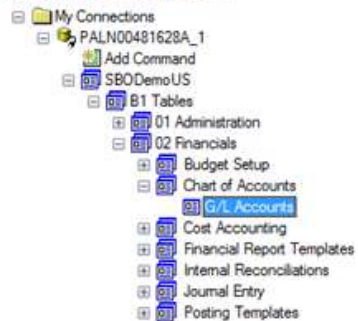
Database Table & Field Display Options



* Right click on Database Expert to access this pop-up menu



Show Description



Show Name

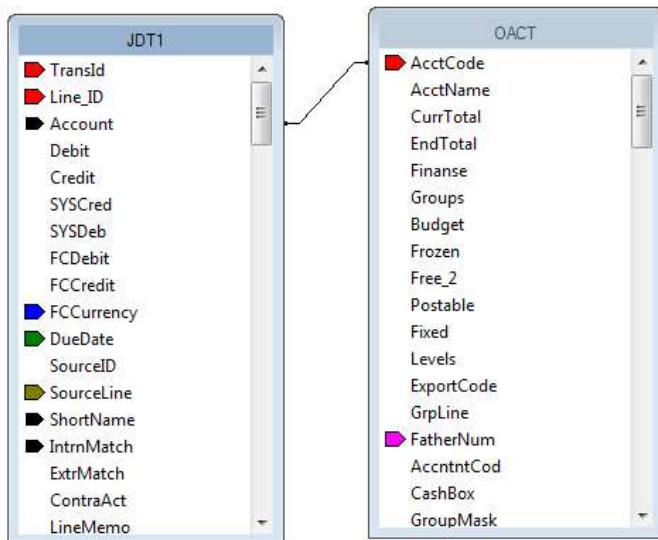
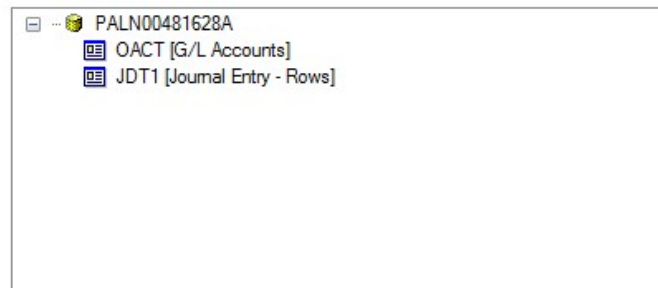


Show Both



Linking Report Tables

Selected Tables:



- If your report contains data from two or more database tables, these tables will be “linked”.
- Linking requires that you use a field that is common or “alike” to both tables.
- You define the linking setup in the Links tab of the Database Expert.
- The new SAP Business One data Source is “aware” of default joins between tables and will link the tables based on knowledge of key structure
- Review the default links set up. It is a good opportunity to become familiar with how Business One tables are linked (joined).
- You can also override or re-order the default links based on your report requirements.
- If you use any other Data Source, (ex. OLE DB (ADO)) please review all links carefully

Linking Report Tables

■ Use Query Generator to help with these table linkages...

- Bold fields in table field list are key (linked) fields in other tables.
- Drag these bold fields to the table list column on the left, and the linked table will appear and the JOIN will be created between the correct fields

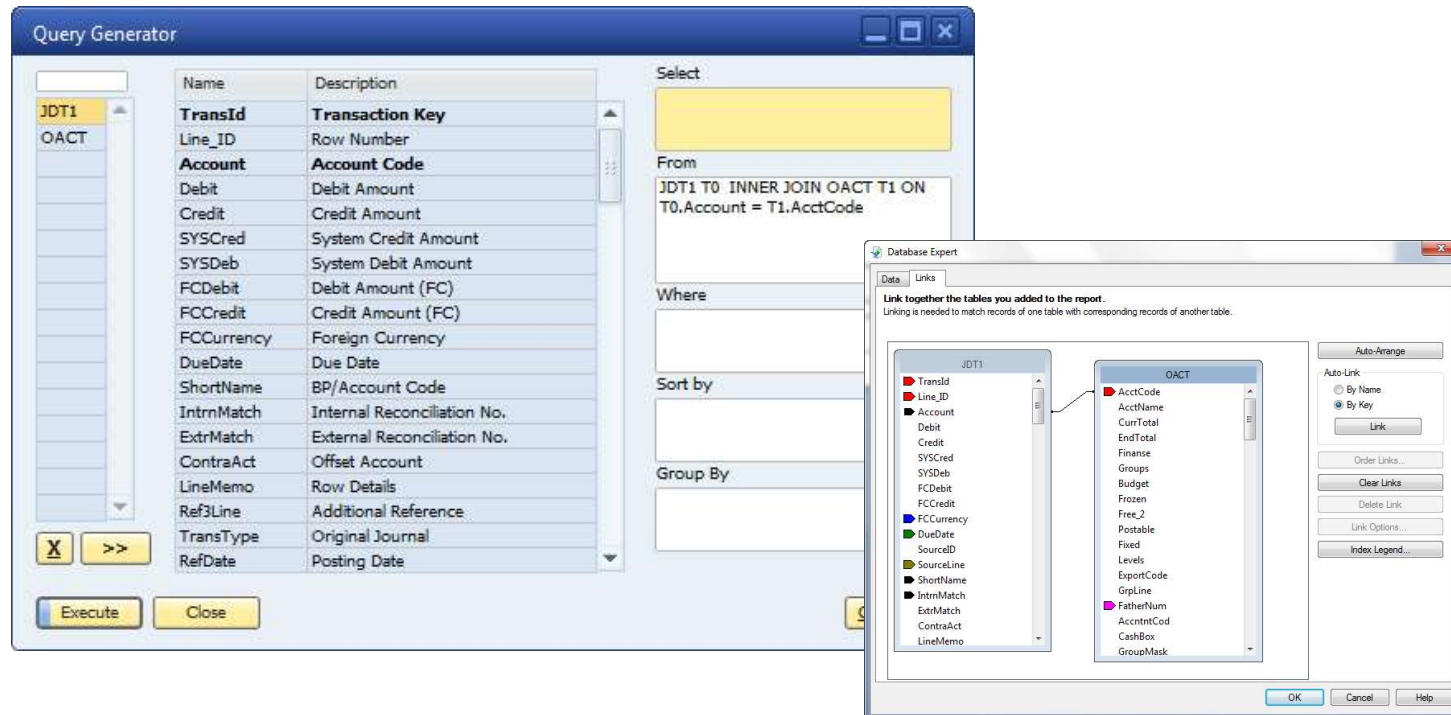


Table Linkage – Examples 1

■ OCRD (Business Partner Master)

- OCRG (Card Groups) using OCRD.GroupCode - OCRG.GroupCode
- OSLP (SalesPersons) using OCRD.SlpCode - OSLP.SlpCode
- OUSR (Users) using OCRD.UserSign – OUSR.INTERNAL_K
- CRD1 (Address) using OCRD.CardCode – CRD1.CardCode
- OCPR (Contacts) using OCRD.CardCode – OCPR.CardCode
- OPLN (Price Lists) using OCRD.ListNum – OPLN.ListNum

■ OITM (Item Master)

- OITB (Item Groups) using OITM.ItmsGrpCod – OITB.ItmsGrpCod
- OMRC (Manufacture) using OITM.FirmCode – OMRC.FirmCode
- ITM1 (Item Prices) using OITM.ItemCode – ITM1.ItemCode
- OACT (GL Accounts) using OITM.IncomeAcct – OACT.AcctCode
using OITM.ExpensAcct – OACT.AcctCode ...

Table Linkages – Examples 2

■ ORDR (Sales Order Header)

- OCRD (Business Partners) using ORDR.CardCode - OCRD.CardCode
- RDR1 (Order Rows) using ORDR.DocEntry – RDR1.DocEntry
- RDR3 (Order Freight) using ORDR.DocEntry - RDR3.DocEntry
- OCTG (Payment Terms) using ORDR.GroupNum – OCTG. GroupNum
- OFPR (Financial Period) using ORDR.FinncPriod – OFPR. AbsEntry

■ OINV (AR Invoice Header)

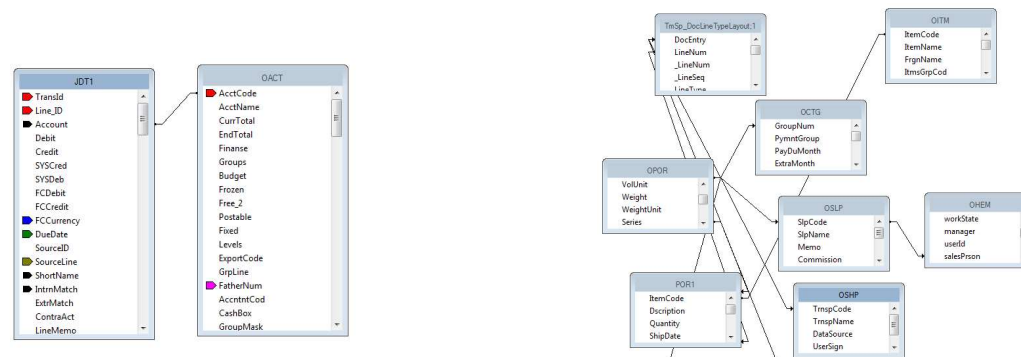
- OCRD (Business Partners) using OINV.CardCode - OCRD.CardCode
- INV1 (Invoice Rows) using OINV.DocEntry – INV1.DocEntry
- OJDT (Journal Entry) using OINV.TransId – OJDT.TransId
- OCTG (Payment Terms) using OINV.GroupNum – OCTG.GroupNum
- OFPR (Financial Period) using OINV.FinncPriod – OFPR.AbsEntry
- OPKL (Pick List) using INV1.AbsEntry - OPKL.PickIdNo

■ JDT1 (Journal Entry Detail)

- OACT (CL Account) using JDT1.Account - OACT.AcctCode

Table Join Types - *Advanced Topic

- **Inner Join** – (DEFAULT) An inner join requires each record in the two joined tables to have a matching record. An inner join essentially combines the records from two tables (A and B) based on one or more fields.
- **Left Outer Join** - The result of a left outer join (or simply left join) for tables A and B always contains all records of the "left" table (A), even if the join-condition does not find any matching record in the "right" table (B).
- **Right Outer Join** -A right outer join (or right join) closely resembles a left outer join, except with the tables reversed. Every record from the "right" table (B) will appear in the joined table at least once. If no matching row from the "left" table (A) exists, NULL will appear in columns from A for those records that have no match in A.
- **Full Outer Join** - A full outer join combines the results of both left and right outer joins. The joined table will contain all records from both tables, and fill in NULLs for missing matches on either side.



Changing a Data Source on a Report

Set Datasource Location

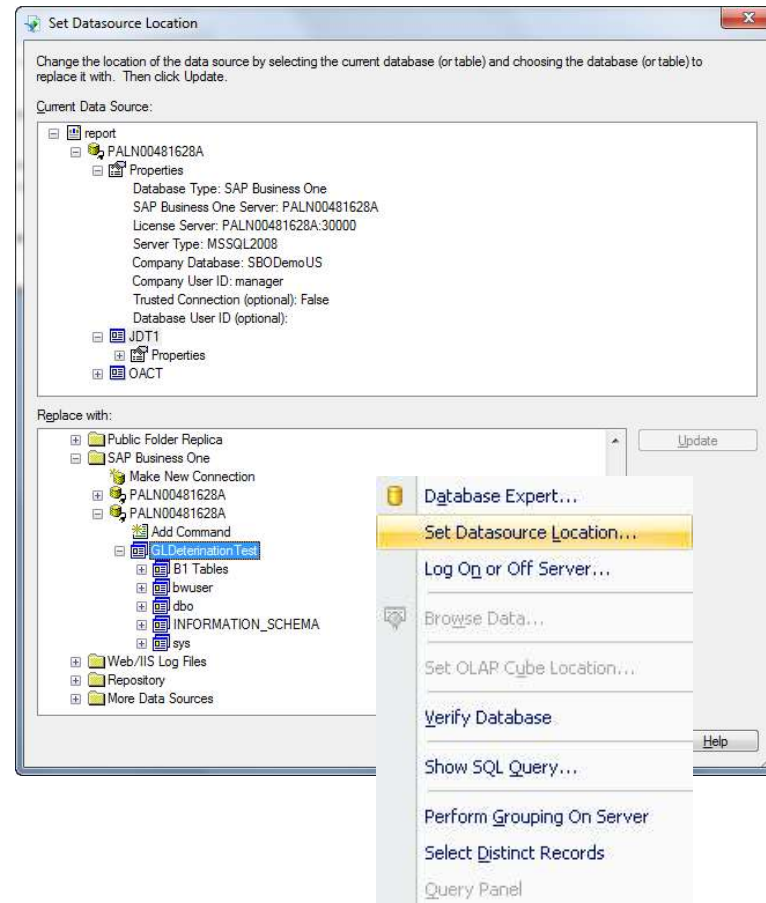
- Can be required when running reports from report designer. B1 will use the current company database.

Current Data Source

- This list displays the database and tables currently used in the report. The main report is shown as the root node.

Replace with

- This list displays the same options as the Data tab of the Database Expert. See Data tab (Database Expert) for information about how to select a new data source or table.
- Update Click the Update button to update the new data source information in the Current Data Source list. If the new data source is different from the one you're replacing, the Map Fields dialog box appears.



Exercise 2

Business One Data Model



POP QUIZ

Multiple Choice and True or False

Vision33⁺
TOTAL CARE

1. What tool(s) do ALL SAP Business One users have at their disposal to view database field and table information
 1. Microsoft SQL Server Management Studio ✓
 2. View > System Information ✓
 3. The SDK Help files ✓
 4. SAP Community Network (SDN) ✓
 5. Query Generator ✓

2. There is a new SAP Data Source in the Current release of Crystal Reports for SAP Business One. Its name is
 1. OLE DB (ADO)
 2. ODBC (RDO)
 3. ADO NET (XML)
 4. SAP Business One ✓
 5. VSAM (LMNOP)

3. To use the new SAP Data Source in Crystal Report, each user must know the 'sa' database password
 1. TRUE
 2. FALSE ✓

POP QUIZ

Continued - Multiple Choice and True or False

Vision33+
TOTAL CARE

4. If you don't know the 'sa' password and you're using the new SAP Data Source in Crystal Report, does the SAP Business One License Manager have to be running?
 1. True ✓
 2. False

5. If you import a Crystal Report or Layout from your Partners Test SQL 2005 database to your Production SQL 2008 database you will have to change your report "data source"
 1. True ✓
 2. False

6. What Menu Option do you select in Crystal to see the Table Descriptions as well as the Table Names when viewing tables for your report
 1. File > Report Options
 2. File > Options ✓
 3. View > Field Explorer
 4. Right Click > Show Field Type

7. If you select more than one SAP Business One table for your report or layout, you must link these tables via a LEFT OUTER JOIN
 1. True
 2. False ✓

POP QUIZ

Continued - Multiple Choice and True or False

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TOTAL CARE

8. If you want to print the Salespersons Name on your report along with customer or vendor data what two tables do you need to join in your report.
1. OCRD and OSLP ✓
 2. CRD1 and OCRD
 3. ORDR and RDR1
 4. OCRD and OCPR
9. The default table JOIN between two tables selected for a report in Crystal is a?
1. LEFT OUTER JOIN
 2. RIGHT OUTER JOIN
 3. FULL OUTER JOIN
 4. FULLY MONTY
 5. INNER JOIN ✓
10. You have to buy the Software Development Kit from your Partner to get access to the SAP Database Tables Reference help file?
1. True
 2. False ✓
11. What table contains a list of all SAP Business One table names used by Query Generator?
1. OTBL
 2. OMG
 3. ATBL
 4. IDK ✓

Crystal Reports for SAP Business One
Version 8.8 family, 9.0 family, and beyond

Carl Britton Lewis – Chief SAP Business One Ambassador