SAP Crystal Solutions
SAP Crystal Reports and SAP Crystal Server

Step by Step guide: Connecting to Microsoft Excel

With SAP Crystal Reports 2020

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Perhaps no single personal computer software package is as ubiquitous as the spreadsheet program. While VisiCalc and Lotus 1-2-3 were early examples of this application, Microsoft Excel has long been the worldwide standard for spreadsheet software. As such, it often finds itself being used as a data source for many other programs, including SAP Crystal Reports.

Crystal Reports provides several methods for connecting to data in a Microsoft Excel workbook. The method you choose, and the steps required to accomplish it, depend on the format of the Excel workbook you wish to report from.

PREPARING MS EXCEL DATA FOR SAP CRYSTAL REPORTS

Because Excel spreadsheets are largely unstructured, you must take some initial steps to ensure that SAP Crystal Reports can properly interpret data from an Excel sheet. Remember that Crystal Reports typically anticipates a data source to appear in "structured relational database" organization – in a series of one or more tables, each with a consistent set of fields (sometimes referred to as columns) and multiple data records (sometimes referred to as rows). When you organize data in Excel for consumption by Crystal Reports, you need to ensure that a consistent field/column, record/row format is maintained.

These tips will help ensure success when using Excel as a Crystal Reports data source:
- Crystal Reports will treat an entire Excel sheet as a table. Make sure you name sheets appropriately, as default "Sheet1," "Sheet2," names won't be meaningful to a report designer.
- Named ranges appear as a data table to Crystal Reports. As with sheets, ensure that named ranges are given descriptive names.
- Whether creating an entire sheet, or a named range, for use with SAP Crystal Reports, ensure that the sheet or range contains a single, contiguous block of data. Empty columns and rows within the sheet or named range will either result in null or blank data in Crystal Reports, or inconsistent records or fields in the resulting report.
- Always use the first row in the sheet or named range for column/field names. Otherwise, Crystal Reports will either interpret the first row of data as field names, or will assign meaningless "F1," "F2," and so forth, field names. Both situations will prove difficult when designing a report.
- Crystal Reports data types (string, number, date, and so forth) are determined by the data contained in each column, as well as the way the column is formatted. If, for example, a column should return numeric data to Crystal Reports, ensure that every row in the column contains only numeric values and that the entire column is formatted in Excel in the desired numeric format. Date columns require similar consistent data in all rows and formatting.

DETERMINING THE MS EXCEL DATA FORMAT

As various versions of Microsoft Excel have been released over its lifetime, the core file format has undergone one significant change. While original Microsoft Excel versions used the .XLS file format, Microsoft Excel versions from the mid 2000s default to the XML-based .XLSX format. The file format your Excel workbook is contained in determines how you connect with Crystal Reports.

.XLS Format

SAP Crystal Reports connects to .XLS workbooks "natively" – no additional data drivers need to be installed and no special configuration needs to be done in advance. You may also connect to .XLS workbooks via OLE DB or an ODBC data source. Details on these options are provided later in this white paper.

.XLSX Format

SAP Crystal Reports will not connect directly to an .XLSX workbook. And, no default support for .XLSX format is provided via other "out of the box" connectivity methods (ODBC, OLE DB, and so forth). Two options exist if the Excel workbook you wish to report from is in .XLSX format:

- Open the workbook in a later version of Microsoft Excel and export the workbook to .XLS format.
- Install the Microsoft Access database engine 2010 Redistributable driver. This will add an .XLSX driver to your computer. You may then connect using an included OLE DB driver or create a standard ODBC data source directly from the .XLSX file.

EXPORTING AN .XLSX FILE TO .XLS FORMAT

If you have a version of Microsoft Excel from the mid-2000s onward installed on your computer, you may open the .XLSX database and export to the .XLS file format (provided the workbook does not contain a large number of rows, or other previous .XLS limitations). Once the desired workbook is open, select File – Save As. Choose a location to save the new workbook. Then, choose Excel 97-2003 Workbook (*.xls) from the Save as type drop down. Give the workbook a filename. Excel will save the workbook in .XLS format.
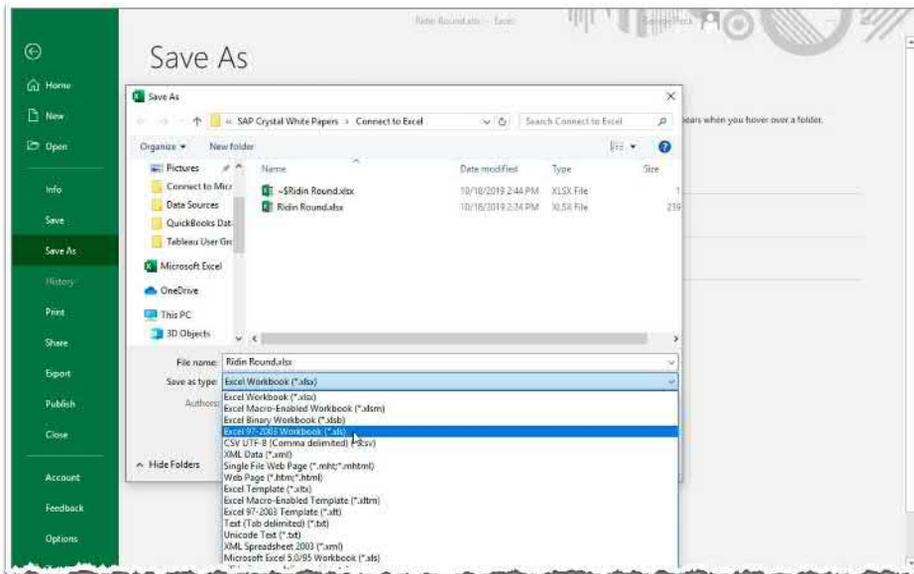
INSTALLING THE MICROSOFT ACCESS DATABASE ENGINE 2010 REDISTRIBUTABLE

It may not be practical (or possible) to convert .XLSX files to .XLS format before reporting. For example, you may not have a copy of Microsoft Excel at your disposal. The workbook may contain a large amount of data that the older .XLS format won't store. Or, you may want to report from an .XLSX file that is updated frequently and your reports need to always reflect the most current data state. For these occasions, you may download the Microsoft Access database engine 2010 Redistributable to facilitate connecting to the .XLSX workbook via OLE DB or ODBC. Perform an Internet search for the driver and ensure you make use of a trusted source for the download (the Microsoft.com website is a good option). Install the product onto your computer.
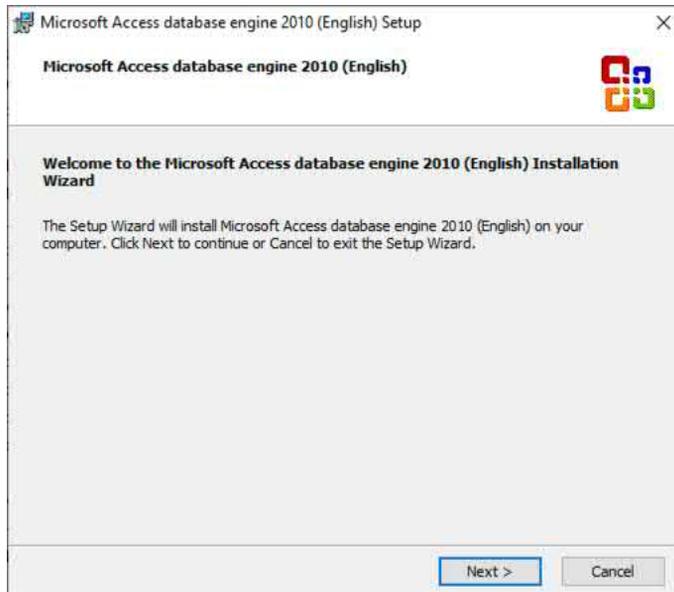
CAUTION: As SAP Crystal Reports 2020 only supports 64-bit database connections, make sure you download and install the 64-bit version of the Microsoft Access database engine 2010 Redistributable.

CONNECTING VIA OLE DB

OLE DB, an abbreviation for Object Linking and Embedding Database, is a Microsoft-defined standard that permits many data sources to connect to many client applications, regardless of vendor or purpose. OLE DB was developed after, and is sometimes considered as a replacement for, ODBC (discussed later in this white paper). As long as a data source and client application provide OLE DB drivers, they can connect to each other. Unlike ODBC, no pre-configuration or previously defined data source name needs to be created to connect. You may simply create a new report and select the desired OLE DB driver (this is covered in detail later in this white paper under Designing the Report.

CREATING AN ODBC DATA SOURCE

ODBC, an abbreviation for Open Database Connectivity, is a Microsoft-defined standard that permits many data sources to connect to many client applications, regardless of vendor or purpose. As long as a data source and client application provide ODBC drivers, they can connect to each other. This method requires that an identically-named ODBC Data Source Name (DSN) resides on each computer that the Crystal Report will run on (including a computer running SAP Crystal Server).

The ODBC Data Source Administrator is used to create ODBC Data Source Names. Depending on the version of Windows you are using, you may find it within Administrative Tools in Control Panel. Or, you may simply search for ODBC. No matter which method you choose, make sure you start the 64-bit version of the ODBC application (as mentioned earlier, Crystal Reports 2020 only supports 64-bit database connections).

1. Select either the User DSN or System DSN tab:

   User DSN will create a Data Source Name only visible to your Windows account.
   System DSN will create a Data Source Name visible to any user on your computer.
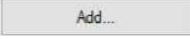
Click [Add...] . The Create New Data Source dialog box will appear.

2. Select the desired Microsoft Excel driver.

   a. If you wish to connect to an older .XLS format, select Microsoft Excel Driver (*.XLS).
   b. If you installed the Microsoft Access database engine 2010 Redistributable and wish to connect to an .XLSX workbook, select Microsoft Excel Driver (*.xls, *.xlsx, *.xlsm, *.xlsb).
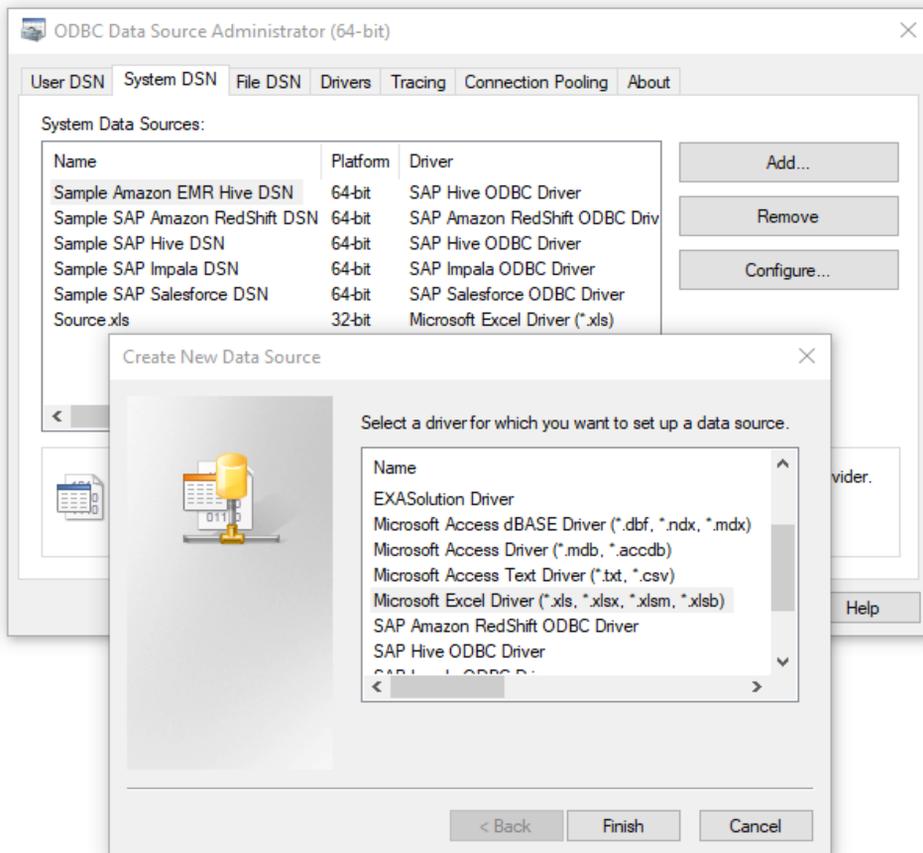
3. Click [Finish] . The ODBC Microsoft Excel Setup dialog box will appear.

4. Type in a unique name for your new ODBC Data Source. Optionally, you may add a free-form description for the data source.

5. Ensure that Excel 12.0 is selected in the Version drop down. Then, click [Select Workbook...] to launch an open file dialog box. Navigate to the folder where the desired .XLS or .XLSX file is located. Select it and click [OK] .
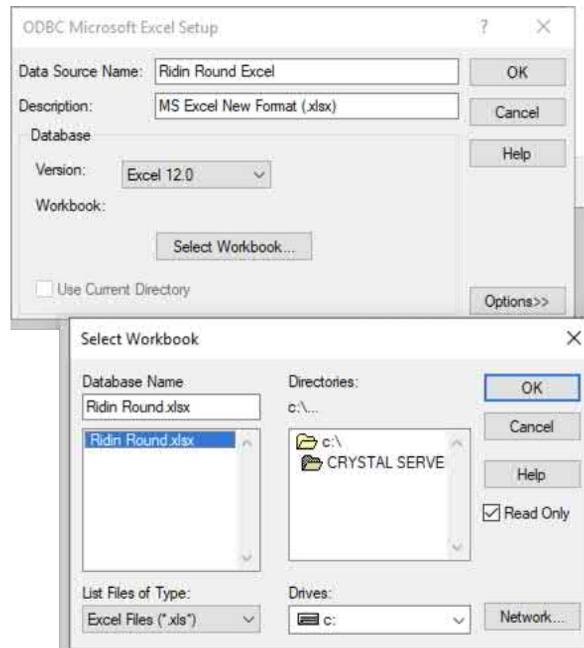
NOTE: If you plan on using Crystal Reports based on this ODBC Data Source on other computers (perhaps you will publish to SAP Crystal Server), install any necessary driver and ensure that an identically-named ODBC Data Source exists on those computers as well.

DESIGNING THE REPORT

Start SAP Crystal Reports and create a new report (using the Blank Report option or a Report Wizard).

## USING AN OLE DB PROVIDER

1. Within the Create New Connection portion of the Database Expert, expand the OLE DB (ADO) category. The OLE DB (ADO) dialog box will open.

2. Select the Microsoft Office 12.0 Access Database Engine option. Click [Next >] .
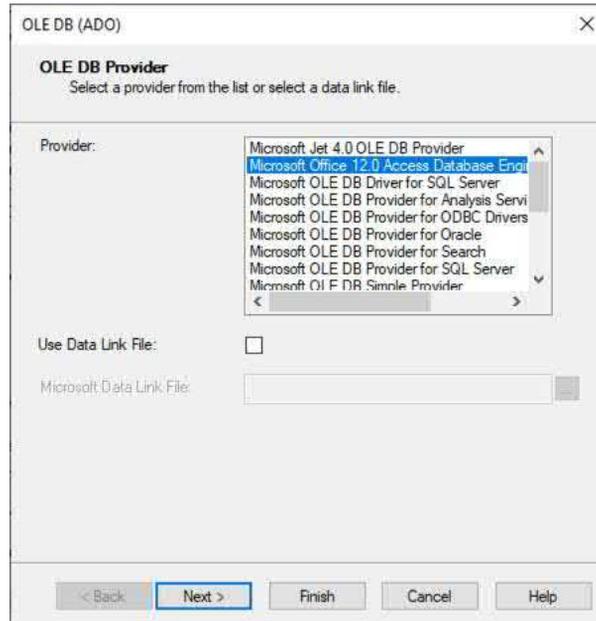
3. Choose Excel from the Office Database Type drop down.

4. Click [...] and navigate to the location of the desired .XLSX workbook. Select it.

NOTE: Because both new .XLSX and older .XLS file formats are supported via OLE DB, you may also select an older .XLS file using this OLE DB method.

5. All remaining fields in the dialog box may be left blank. Click [Finish] .
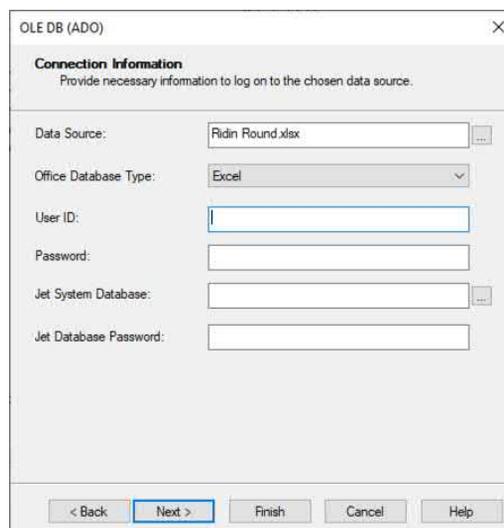
6. The workbook you selected will now appear in the Database Expert within the OLE DB (ADO) category. Next to the database click the plus sign to expand sheets and named ranges.
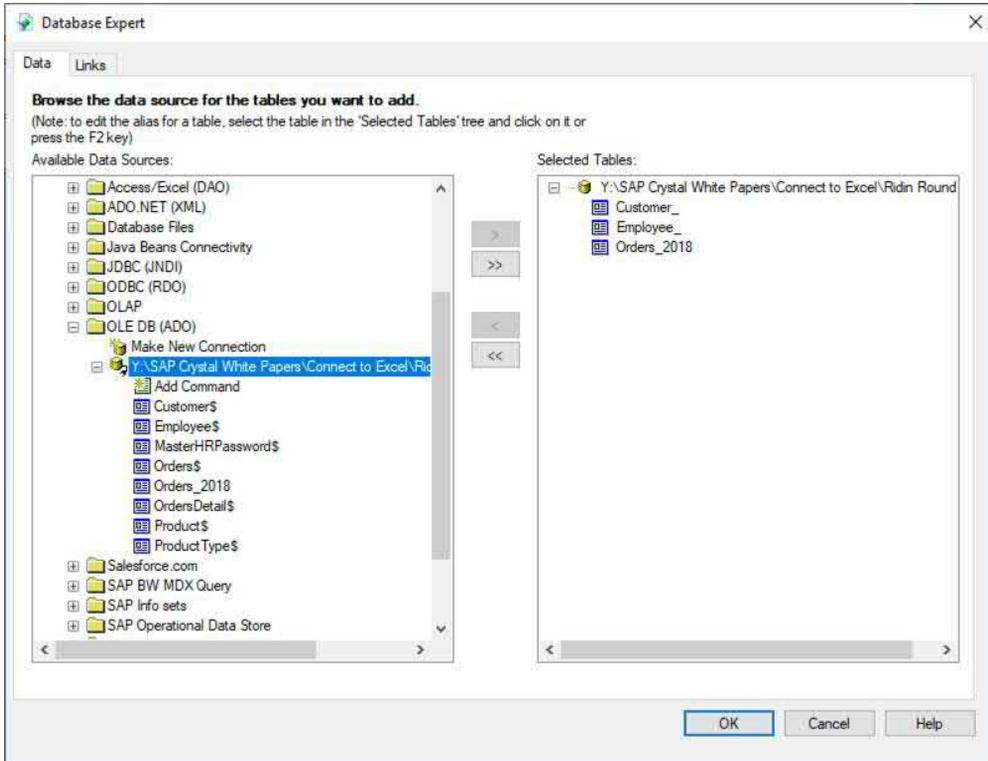
CONNECTING TO AN ODBC DATA SOURCE
1. Within the Create New Connection portion of the Database Expert, expand the ODBC (RDO) category. The ODBC (RDO) dialog box will open.

2. Select the desired ODBC Data Source. Click [Finish] .
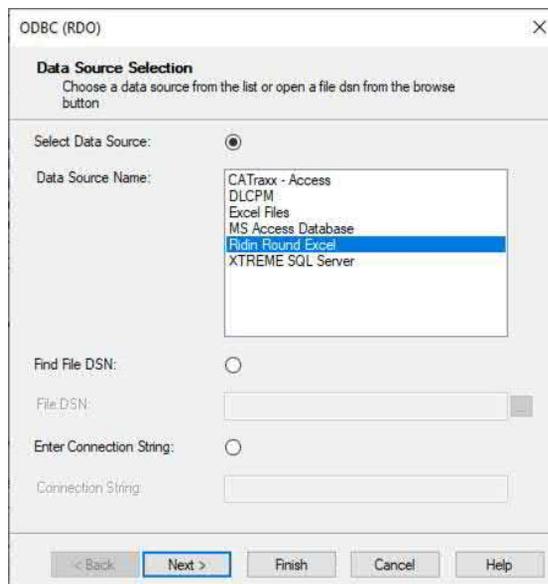
3. The workbook you selected will now appear in the Database Expert within the ODBC (RDO) category. Next to the database click the plus sign to expand workbook named ranges.
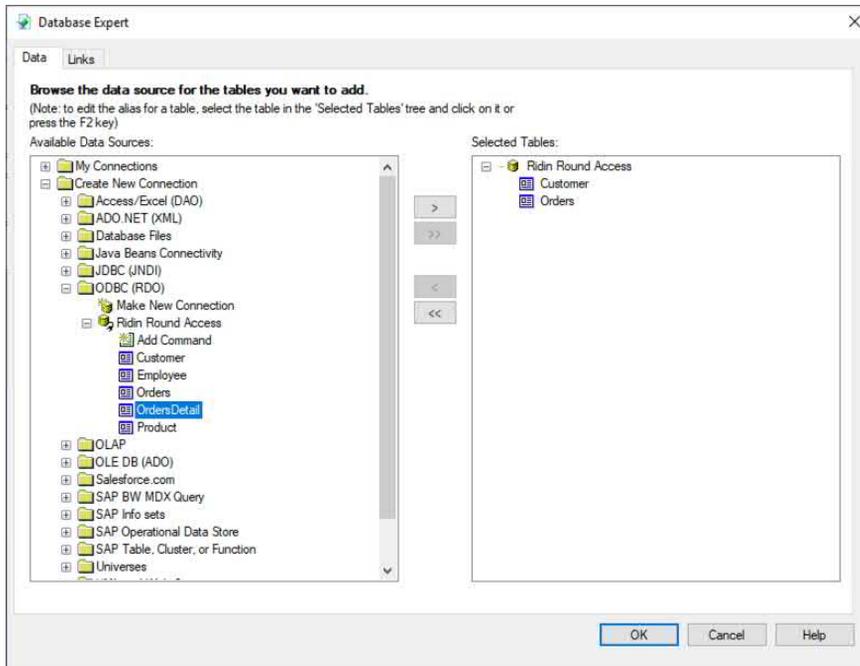
CAUTION: When using OLE DB to connect to an .XLSX workbook, both named ranges and entire sheets appear as Crystal Reports tables. However, ODBC only exposes named ranges to Crystal Reports. You may need to re-open the workbook in Excel and add named ranges if the data table you wish to use doesn't initially appear when designing a Crystal Report using ODBC.

You may now add and join database objects to the report. The Connect to a Data Source guide on the SAP Crystal Guides page discusses adding and joining database items in more detail.

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