EMu Release Notes

ADO Reports

EMu 5.0

Document Version 1

EMu
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Management
System

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Contents

SECTION 1

ADO Reports

Report generation and performance have been improved with EMu 5.0 and it is now possible to report directly to an Open Database Connectivity (ODBC) data source and to an ActiveX Data Objects (ADO) RecordSet object, bypassing the ODBC filtering process.

The new report options are:

- Crystal Reports: report directly in ODBC format, bypassing the ODBC filtering process.
- Crystal ADO: report using ADO RecordSets for Crystal (which are accessible via Crystal's ADO connector).
- Microsoft ADO: report using ADO RecordSets for Microsoft products.

Crystal and Microsoft reports (Excel, Power Point and Word) which currently connect to an ODBC data source can be modified to use an ADO RecordSet.
It remains possible to create reports by connecting directly to an ODBC data source.

Note

This document assumes familiarity with Report creation in EMu. Full details about Report Creation are available in the EMu Help: **Working with EMu records>Reports**.

SECTION 2

Crystal Reports

Creating a Crystal Report using the new ADO RecordSet is similar to creating a Crystal report with a direct ODBC connection. The main differences are in selecting the data source. This document describes the differences.

How to create a Crystal ADO Report

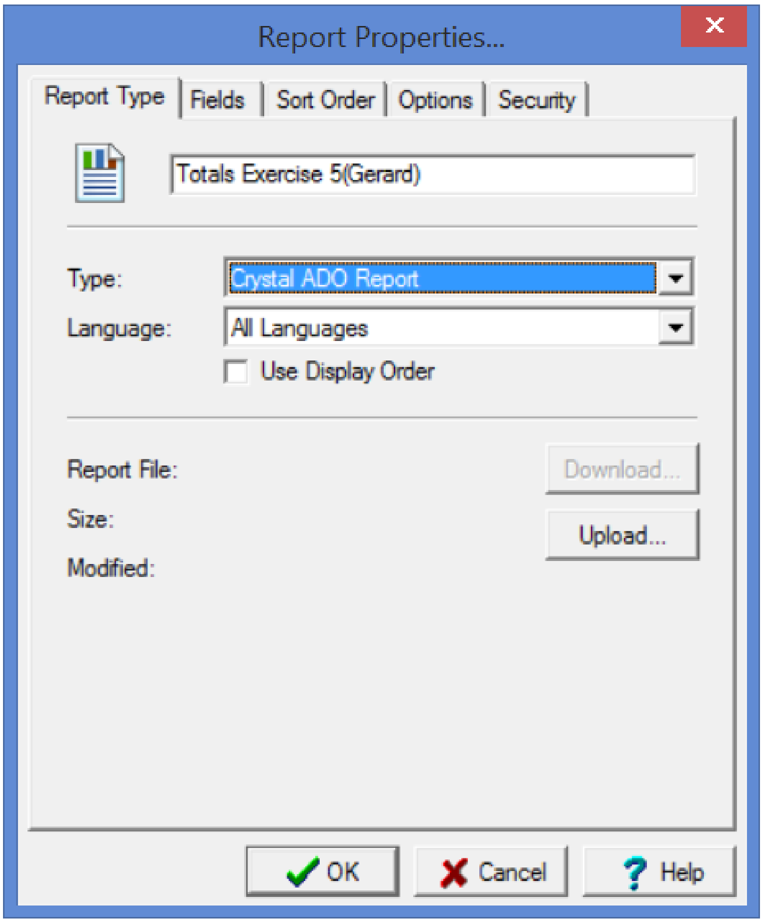
In EMu:

1. Search for or otherwise list a group of records on which to report.

> When designing a Crystal ADO report the records in your initial record set must have a value in each field to be included in the report. If not, the field name will not appear in the list of available columns. Once the report is defined, it does not matter if a record does not have values in every field included in the report.

2. Click **Reports** in the Tool bar to display the Reports box.
3. Click

in the Reports box.
The Report Properties box displays.
4. Enter a descriptive name for the Report in the top text field.
5. Select Crystal ADO Report from the *Type* drop list:



Totals Exercise 5(Gerard)

Type: Crystal ADO Report

Language: All Languages

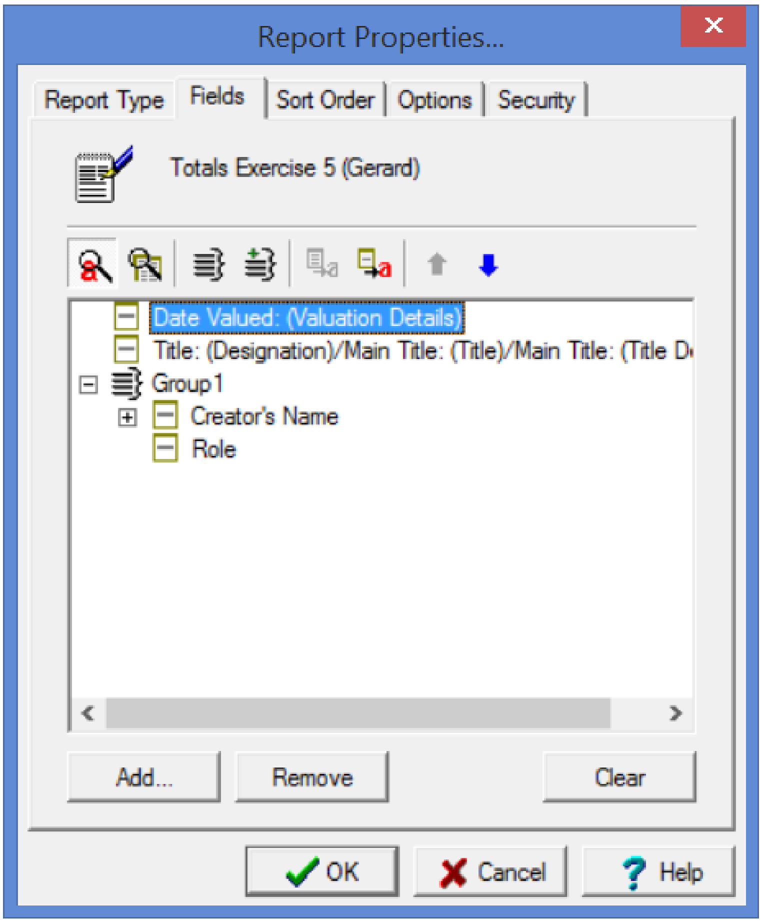
□ Use Display Order

Report File:

Size:

Modified:

6. On the Fields tab, add the fields to be included in the report. In this example the fields selected are:



Totals Exercise 5 (Gerard)

- Date Valued: (Valuation Details)
- Title: (Designation)/Main Title: (Title)/Main Title: (Title D
- Group1
  - Creator's Name
  - Role

Note that a group was created using the **Create Group** button.

7. Make changes on the other tabs as required.

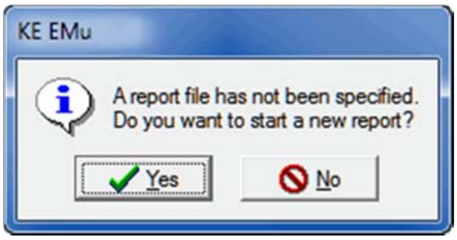
   See the EMu Help for details about setting a sort order, sort options, and security.

8. Click OK.

   The new report is added to the Reports box.

9. In the Reports box, select the new report and click Report All... to run the report for the first time.

   A message will display indicating that your report does not exist on the server. This is to be expected as the report has not yet been built in Crystal Reports:



A report file has not been specified.
Do you want to start a new report?

10. Click Yes.

    An xml file is generated and saved with the data from your record set. The location of this file can vary, but typically it can be found in:

    `C:\Users\[`*your username*`]\AppData\Local\KESoftware\Reports\e[`*module name*`]`

For example, a report run in the Parties module, will save the xmldata file to:
`C:\Users\[`*your username*`]\AppData\Local\KESoftware\Reports\eparties`

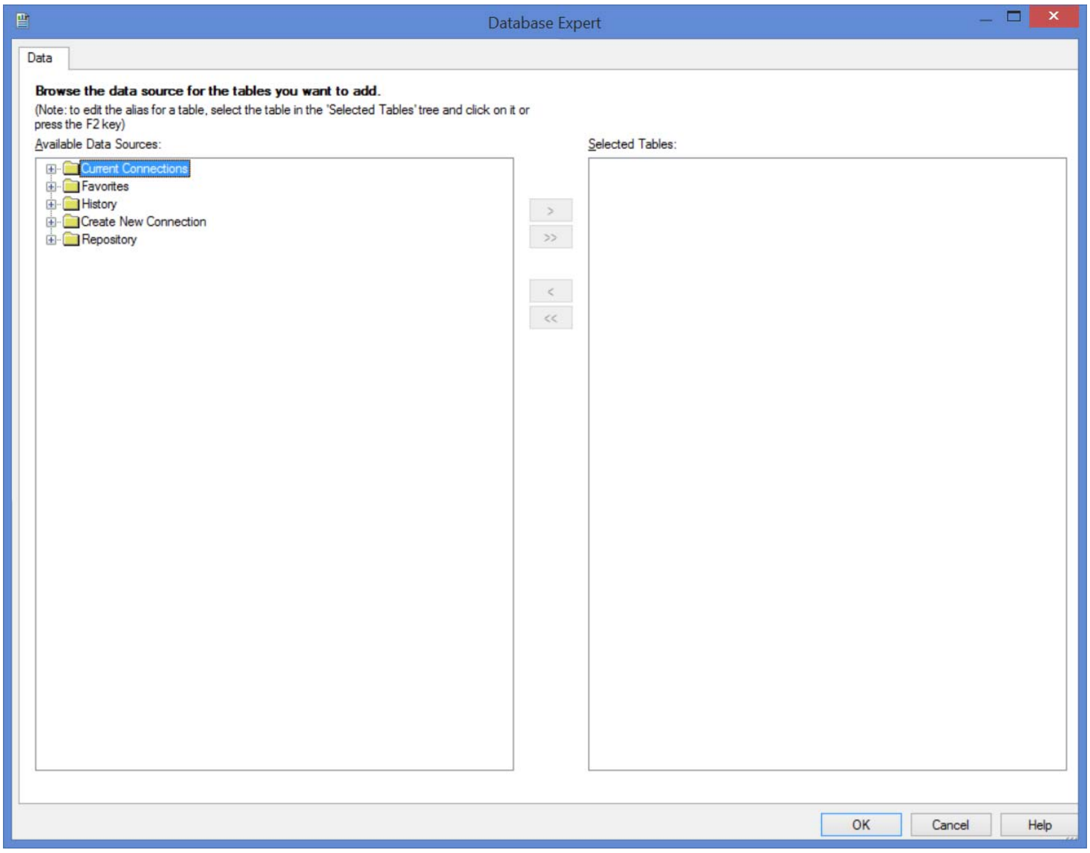
The Crystal Reports Designer application will open.

11. On the Start Page of the Crystal Reports Designer, select **Blank Report** under the New Reports heading

    -OR-

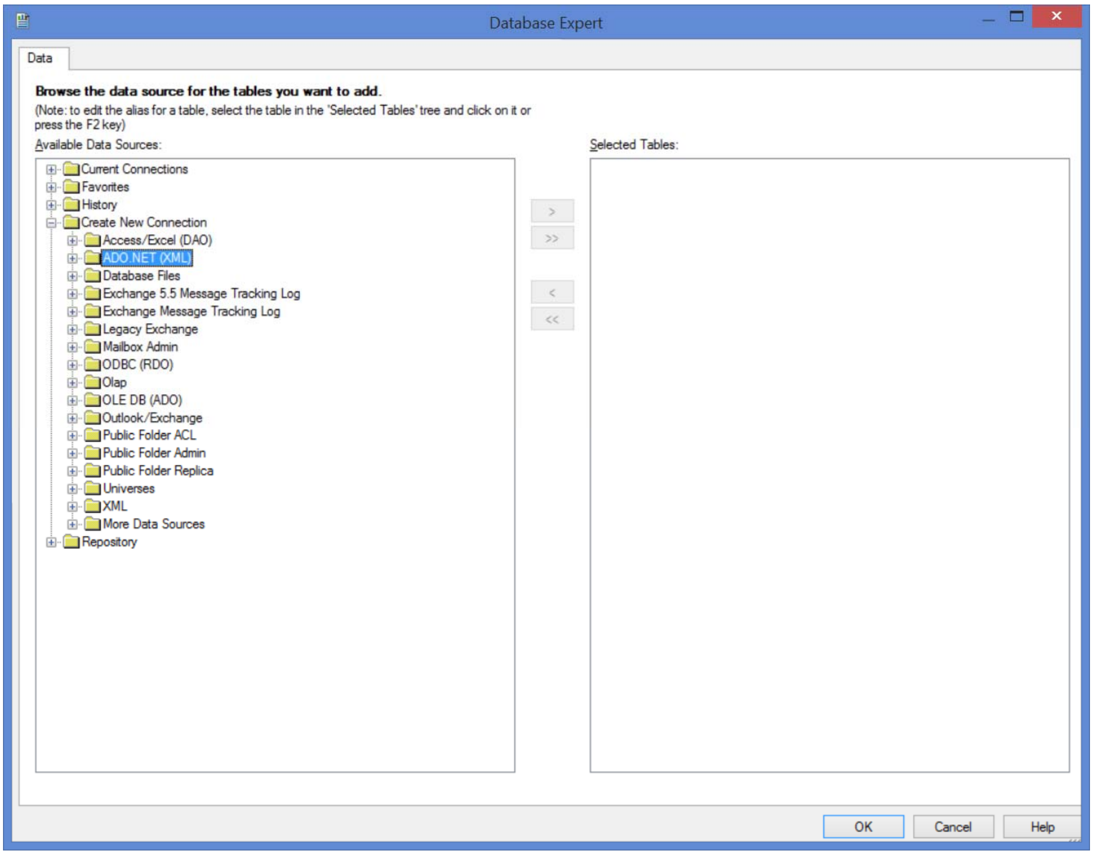
    Select **File>New>Blank Report** in the Menu bar.

    The Database Expert box displays:



Browse the data source for the tables you want to add.
(Note: to edit the alias for a table, select the table in the 'Selected Tables' tree and click on it or press the F2 key)

12. Double-click **Create New Connection** and click ⊞ beside **ADO.NET (XML)**:


Database Expert

Browse the data source for the tables you want to add.

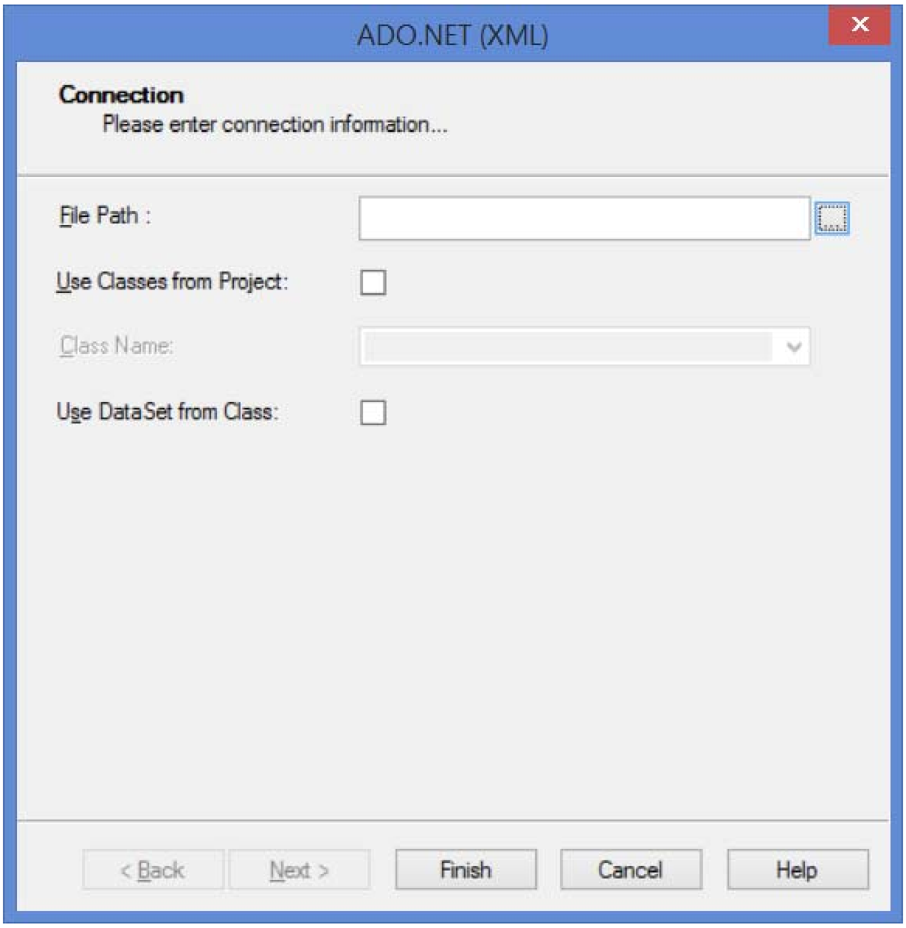
(Note: to edit the alias for a table, select the table in the 'Selected Tables' tree and click on it or press the F2 key)

Available Data Sources:

- Current Connections
- Favorites
- History
- Create New Connection
  - Access/Excel (DAO)
  - ADO.NET (XML)
  - Database Files
  - Exchange 5.5 Message Tracking Log
  - Exchange Message Tracking Log
  - Legacy Exchange
  - Mailbox Admin
  - ODBC (RDO)
  - Olap
  - OLE DB (ADO)
  - Outlook/Exchange
  - Public Folder ACL
  - Public Folder Admin
  - Public Folder Replica
  - Universes
  - XML
  - More Data Sources
- Repository

Selected Tables:

The following screen will display:


ADO.NET (XML)

Connection

Please enter connection information...

File Path :

Use Classes from Project: □

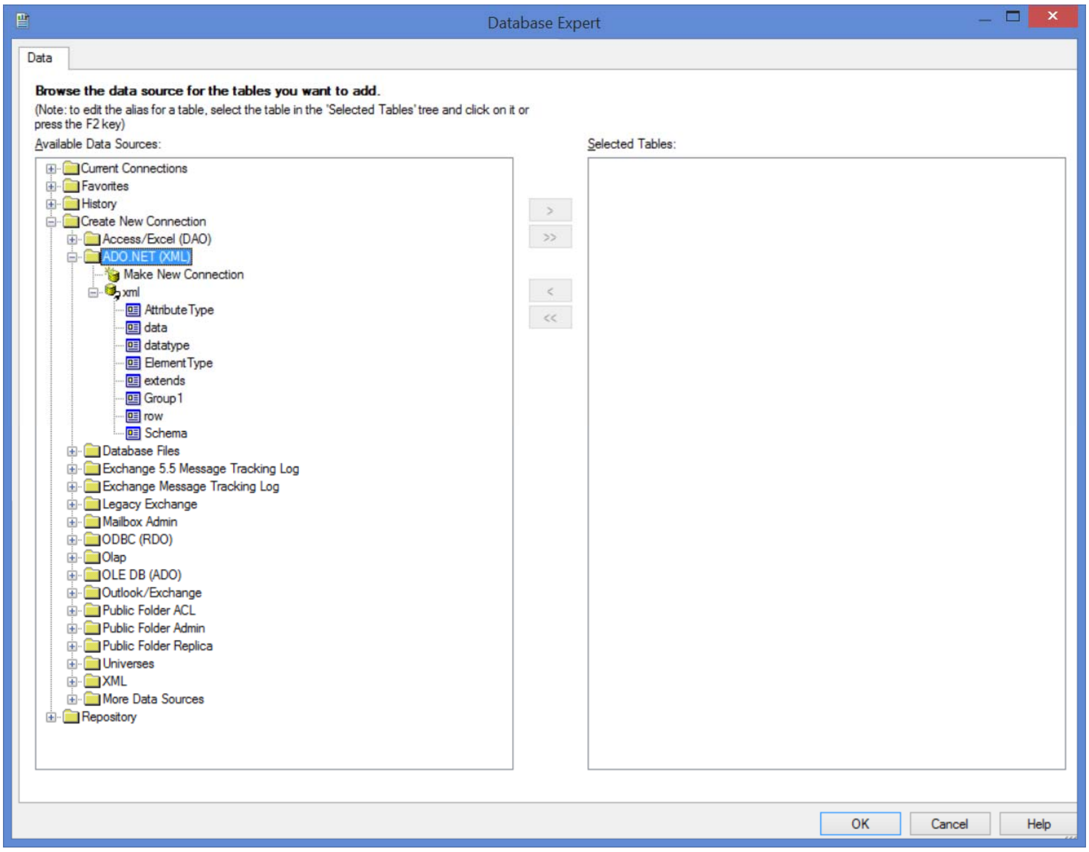
Class Name:

Use DataSet from Class: □

13. Click the button beside the *File Path* field to locate and select the `xmldata.xml` file created when the report was first run (Step 9).

    See Step 10 for details of the location of the `xmldata.xml` file.

14. Click Finish to return to the Database Expert:



Database Expert

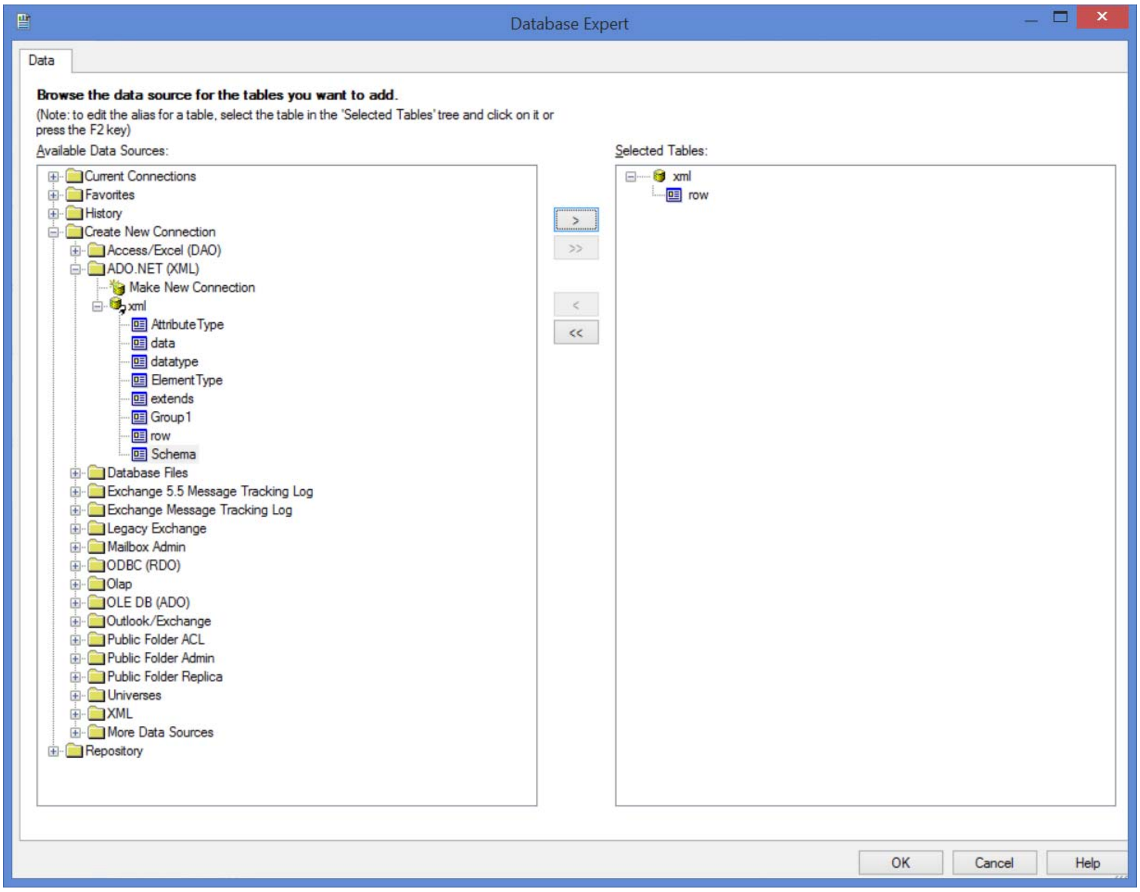
Browse the data source for the tables you want to add.

(Note: to edit the alias for a table, select the table in the 'Selected Tables' tree and click on it or press the F2 key)

`Group 1` contains values from fields that we grouped in the EMu report in this example (see Step 6). These fields are tables of values (they can hold more than one value). This data needs to be added to our report using a sub-report (see the EMu Help for details).

Field values from the Catalogue are contained in the table called `row`.

15. Select **row** and add it to the *Selected Tables* pane:



Browse the data source for the tables you want to add.

(Note: to edit the alias for a table, select the table in the 'Selected Tables' tree and click on it or press the F2 key)

16. Click OK.

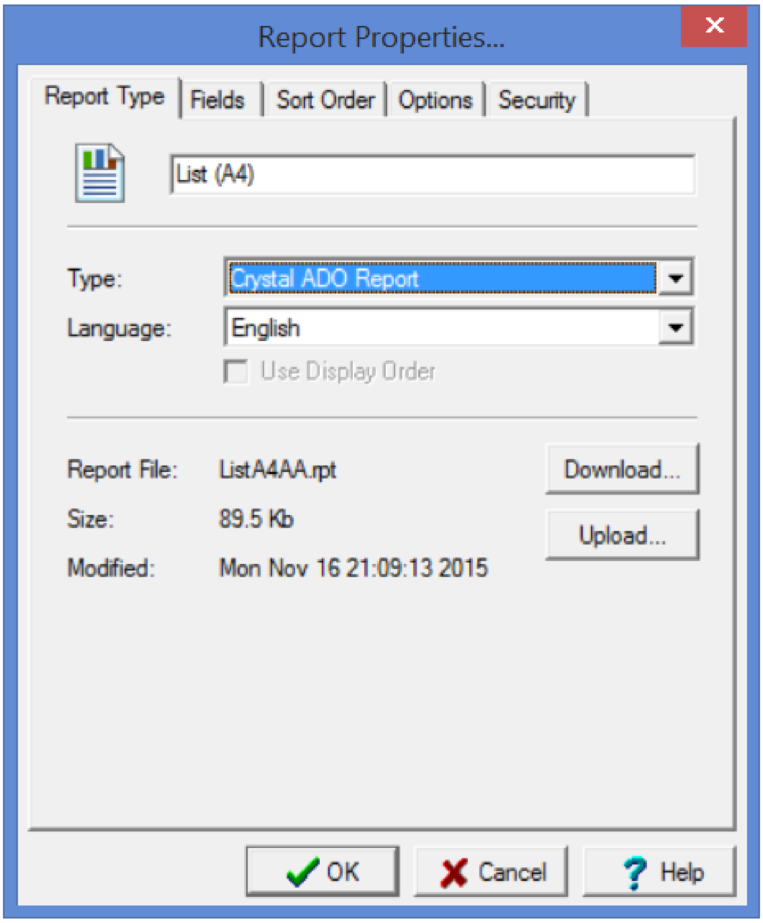
    The Crystal Report Designer displays, ready for you to design your Crystal report. See the EMu Help for details of designing a Crystal Report.

> It is important not to move the `xmldata.xml` file as this will cause problems when sharing the report with other users.

How to modify a Crystal Report to use ADO instead of ODBC

To modify a Crystal Report to use ADO rather than ODBC:

1. Open the Report Properties dialogue for the report.
   This example uses the default report `List (A4)`.
2. Select **Crystal ADO Report** from the Type drop list:



Report Properties...

List (A4)

Type: Crystal ADO Report

Language: English

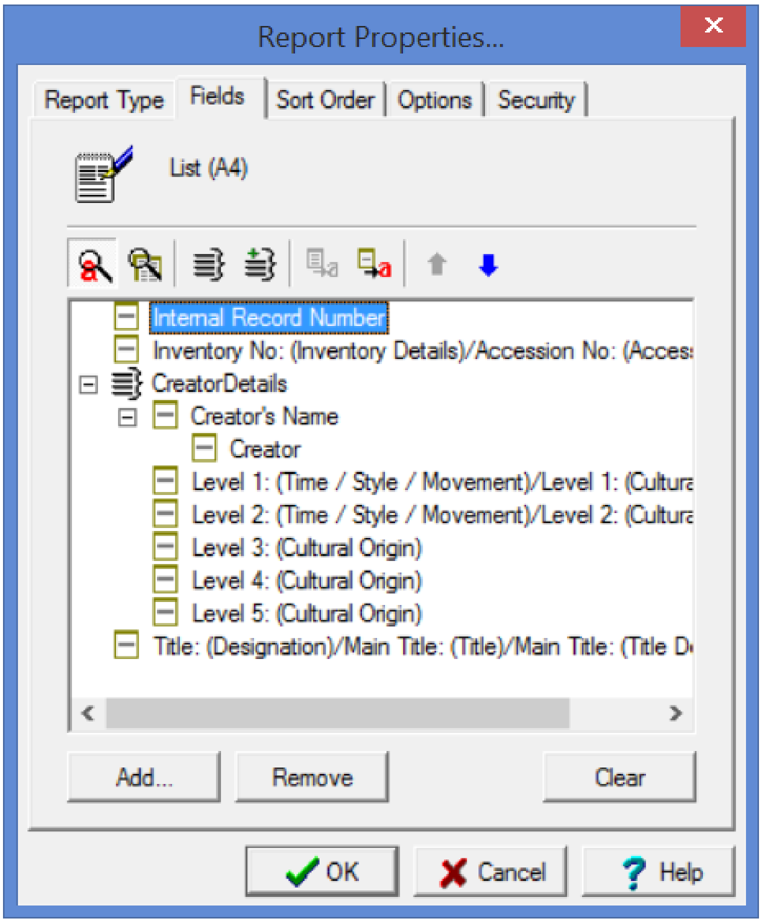
□ Use Display Order

Report File: ListA4AA.rpt

Size: 89.5 Kb

Modified: Mon Nov 16 21:09:13 2015

The fields for this report are:

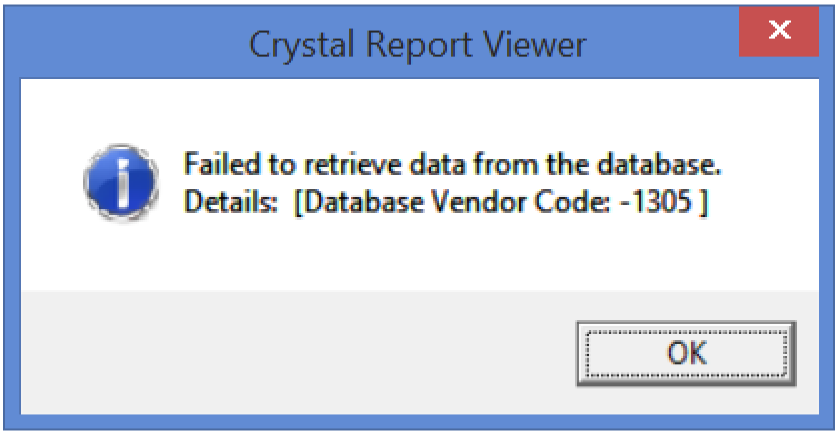


Internal Record Number
Inventory No: (Inventory Details)/Accession No: (Acces
CreatorDetails
Creator's Name
Creator
Level 1: (Time / Style / Movement)/Level 1: (Cultura
Level 2: (Time / Style / Movement)/Level 2: (Cultura
Level 3: (Cultural Origin)
Level 4: (Cultural Origin)
Level 5: (Cultural Origin)
Title: (Designation)/Main Title: (Title)/Main Title: (Title D

Two tables are generated in this report.

3. Click ✓ OK and run the report.

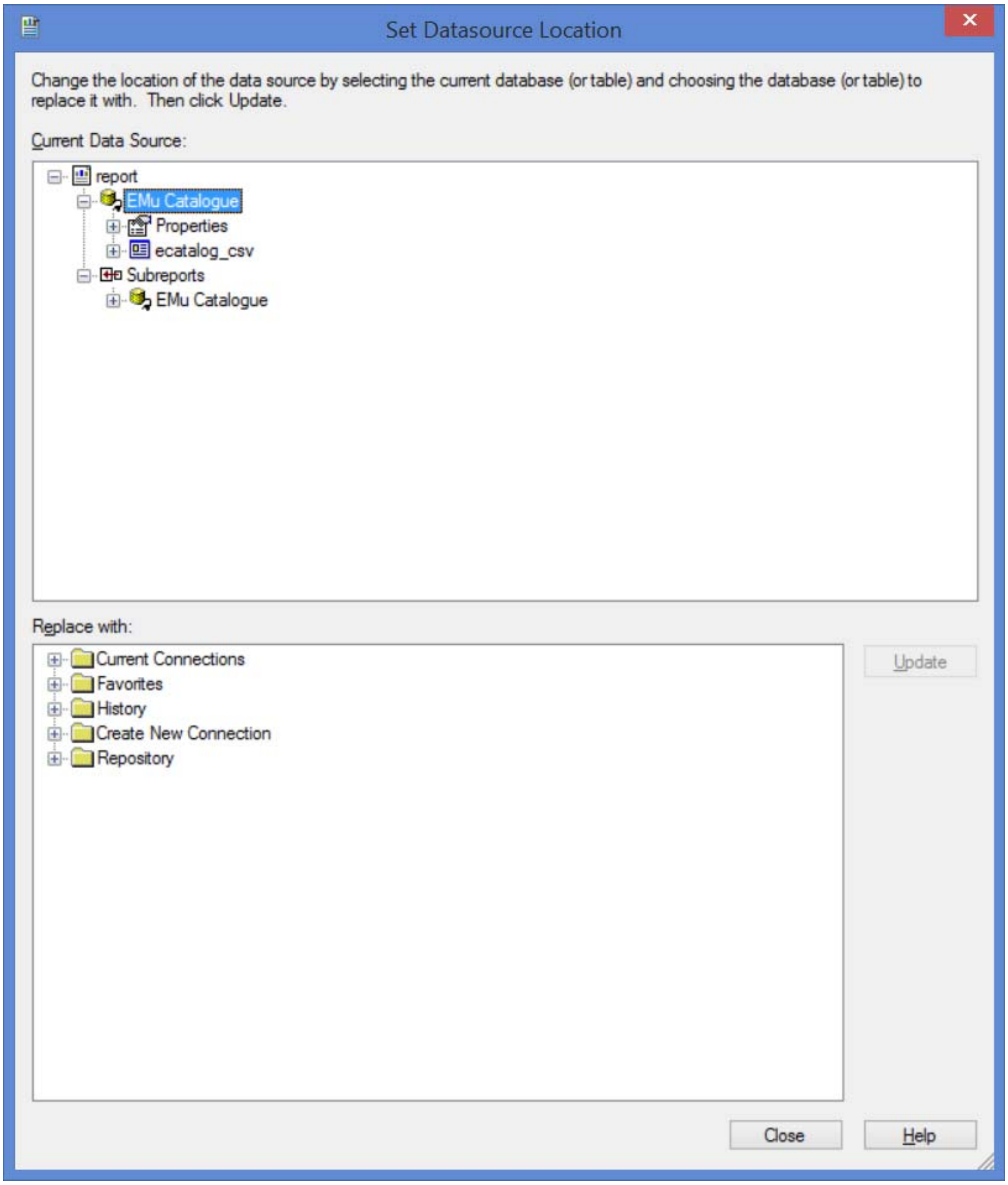
   Crystal will create the ADO record set and the following error will display:



Failed to retrieve data from the database.
Details: [Database Vendor Code: -1305]

4. Open the Crystal report in the Crystal Report Designer and select the **Database>Set Datasource Location** menu option.

   The Set Datasource Location dialogue will display:



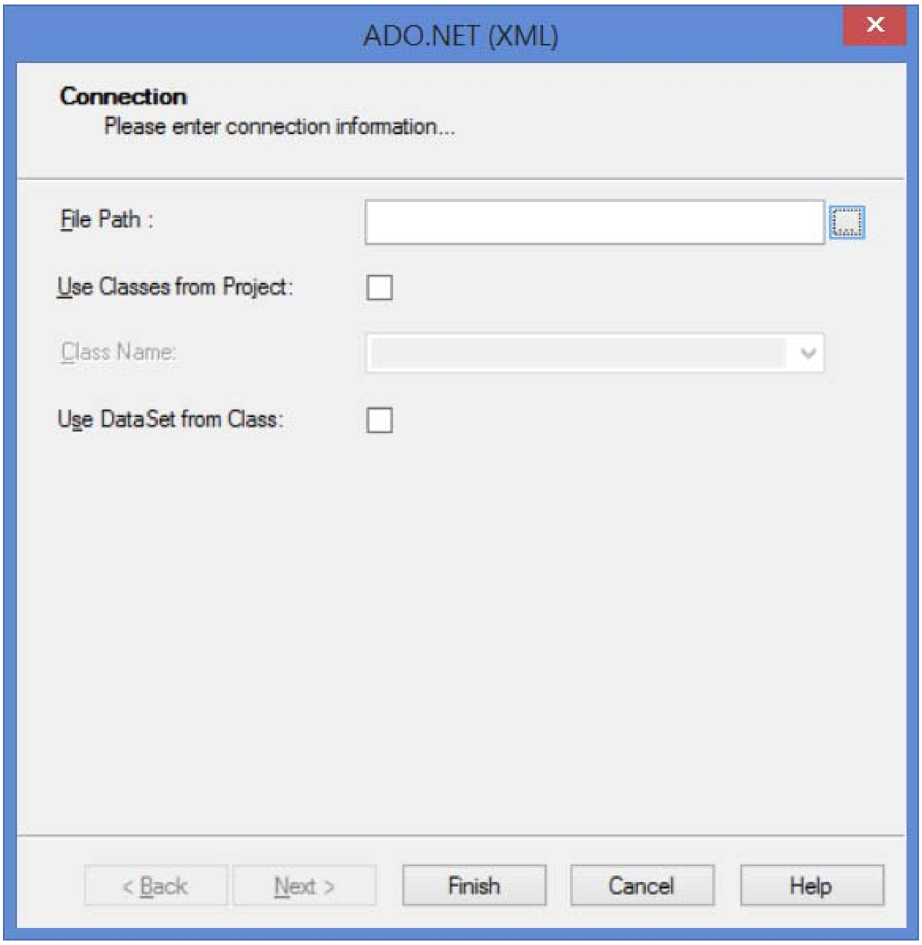
Set Datasource Location

Change the location of the data source by selecting the current database (or table) and choosing the database (or table) to replace it with. Then click Update.

Current Data Source:

5. Select **Create New Connection** in the *Replace with* pane and click ⊞ beside **ADO.NET (XML)**.

   The following screen will display:



ADO.NET (XML)

Connection

Please enter connection information...

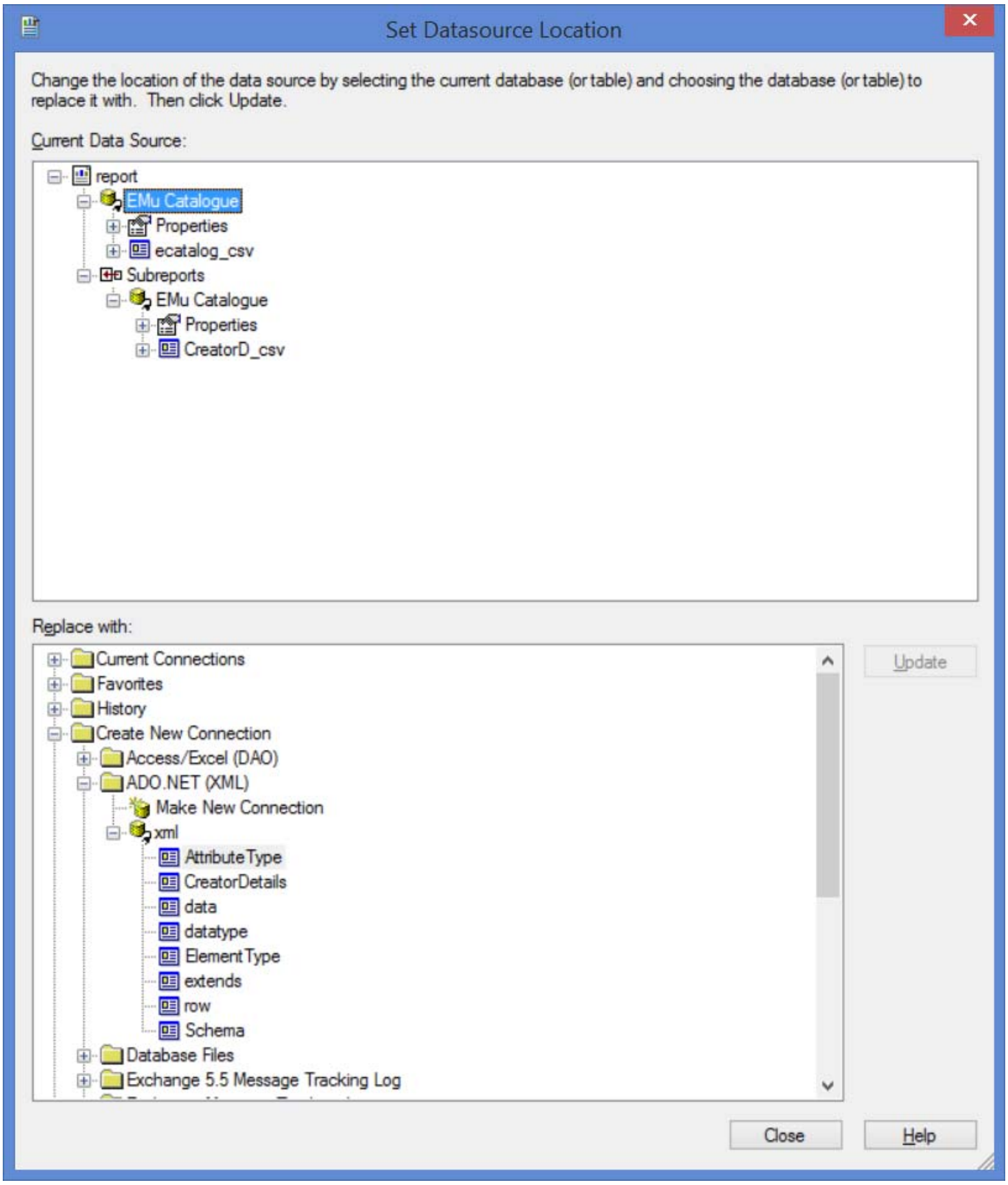
File Path :

Use Classes from Project: □

Class Name:

Use DataSet from Class: □

6. Click the button beside the *File Path* field to locate and select the `xmldata.xml` file created when the report was run.
   The location of this file can vary, but typically it can be found in:
   `C:\Users\[`*your username*`]\AppData\Local\KESoftware\Reports\e[`*module name*`]`
   For example, a report run in the Parties module, will save the xmldata file to:
   `C:\Users\[`*your username*`]\AppData\Local\KESoftware\Reports\eparties`
7. Click Finish.
   You are returned to the Set Datasource Location dialogue:



Set Datasource Location

Change the location of the data source by selecting the current database (or table) and choosing the database (or table) to replace it with. Then click Update.

Current Data Source:

Replace with:

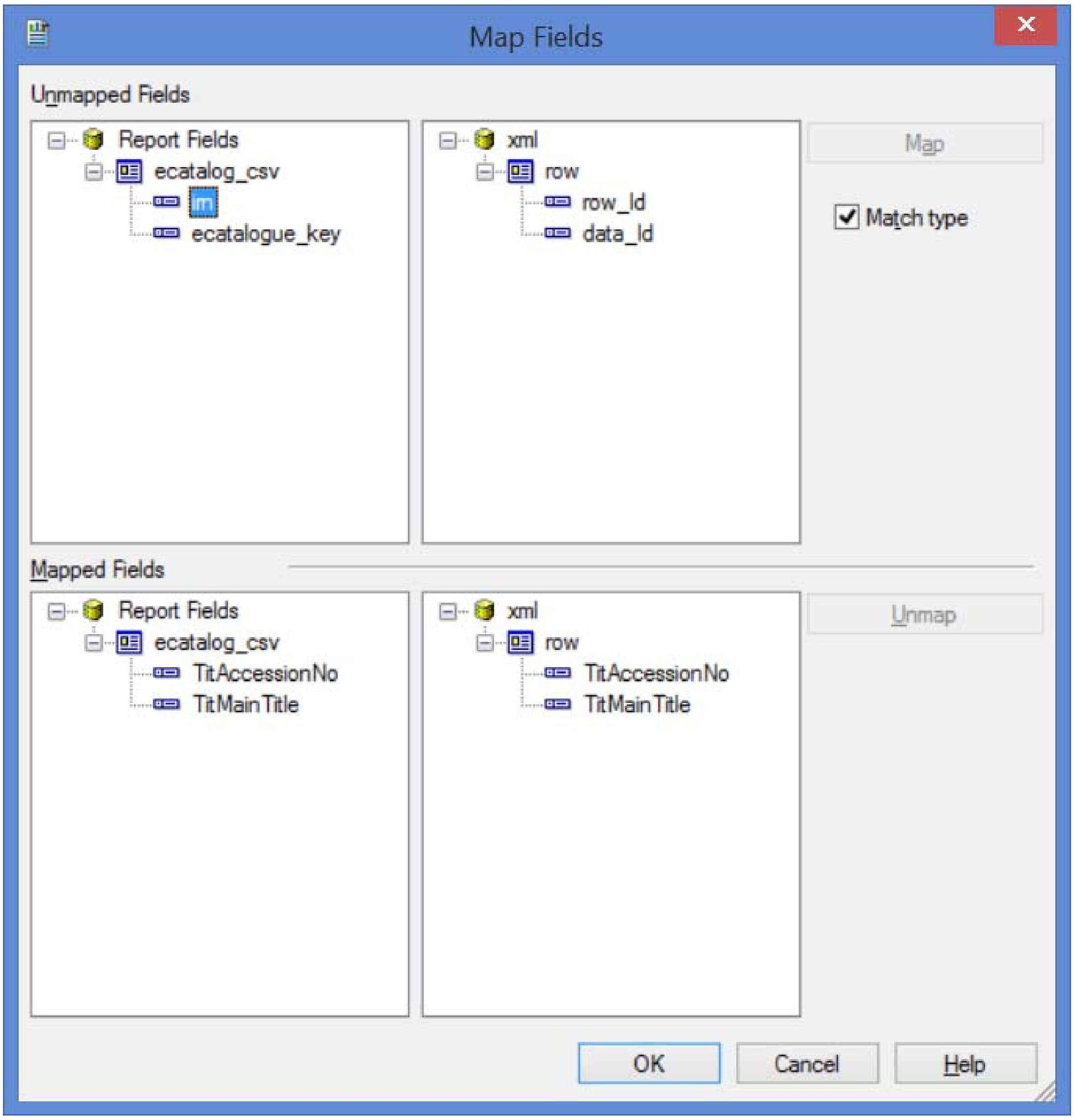
Next it is necessary to map fields from the old ODBC data source to the new ADO RecordSet.

In this example there are two tables to map and one sub-report.

8. To map the old ODBC Catalogue fields to the new Catalogue table, click **ecatalogue_csv** in the *Current Data Source* pane and then click the **row** table in the *Replace with* pane.

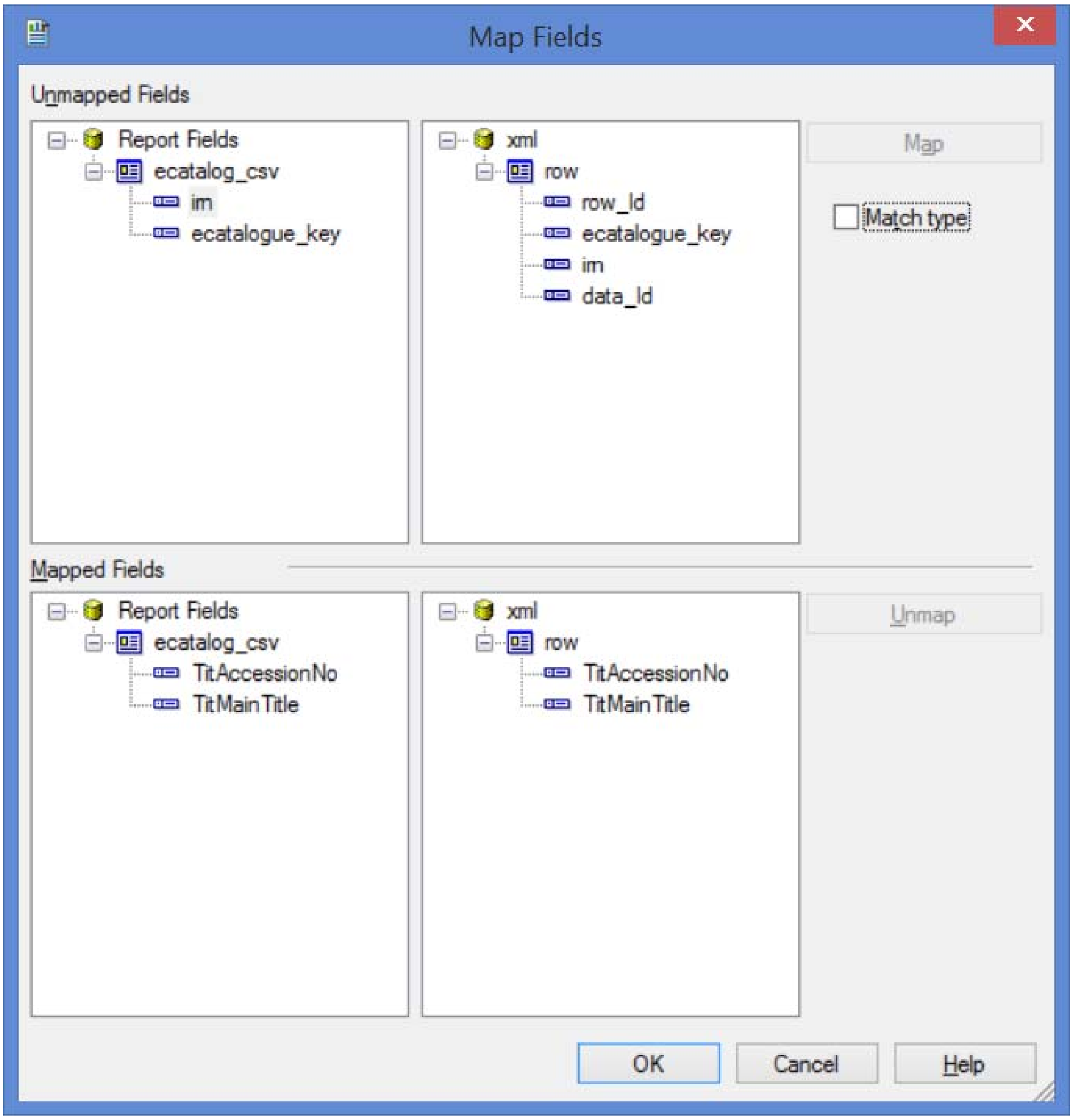
   The Update button will be enabled.

9. Click the **Update** button and the Map Fields dialogue will display:



Fields with the same name will be mapped automatically.

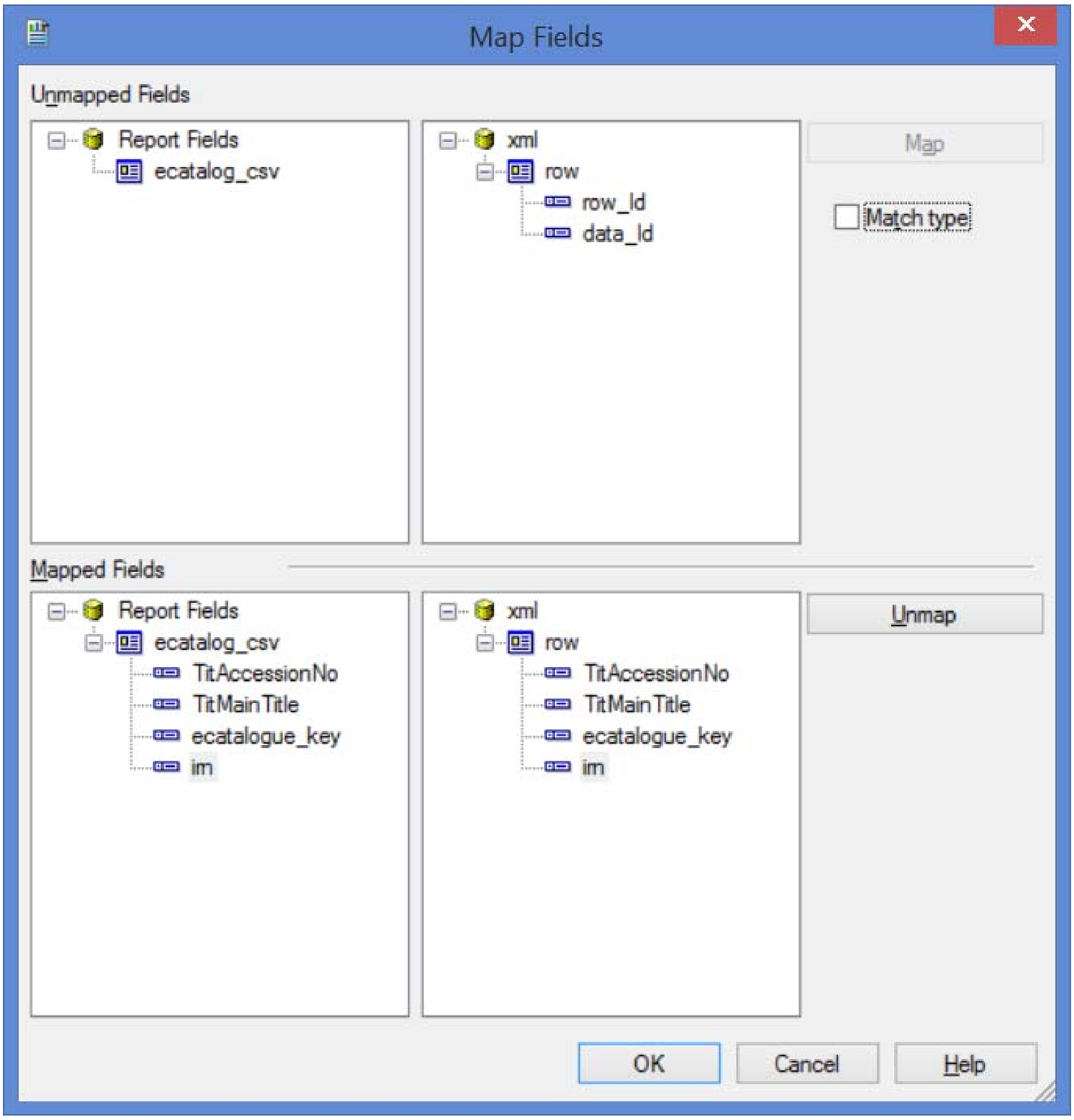
10. Uncheck the **Match type** check box to reveal more fields in the *Unmapped Fields* pane:



11. Complete mapping fields in the *Unmapped Fields* pane.

    In this example we map `ecatalogue_key` to `ecatalogue_key` and `irn` to `irn` by selecting both fields to map and clicking the **Map** button.

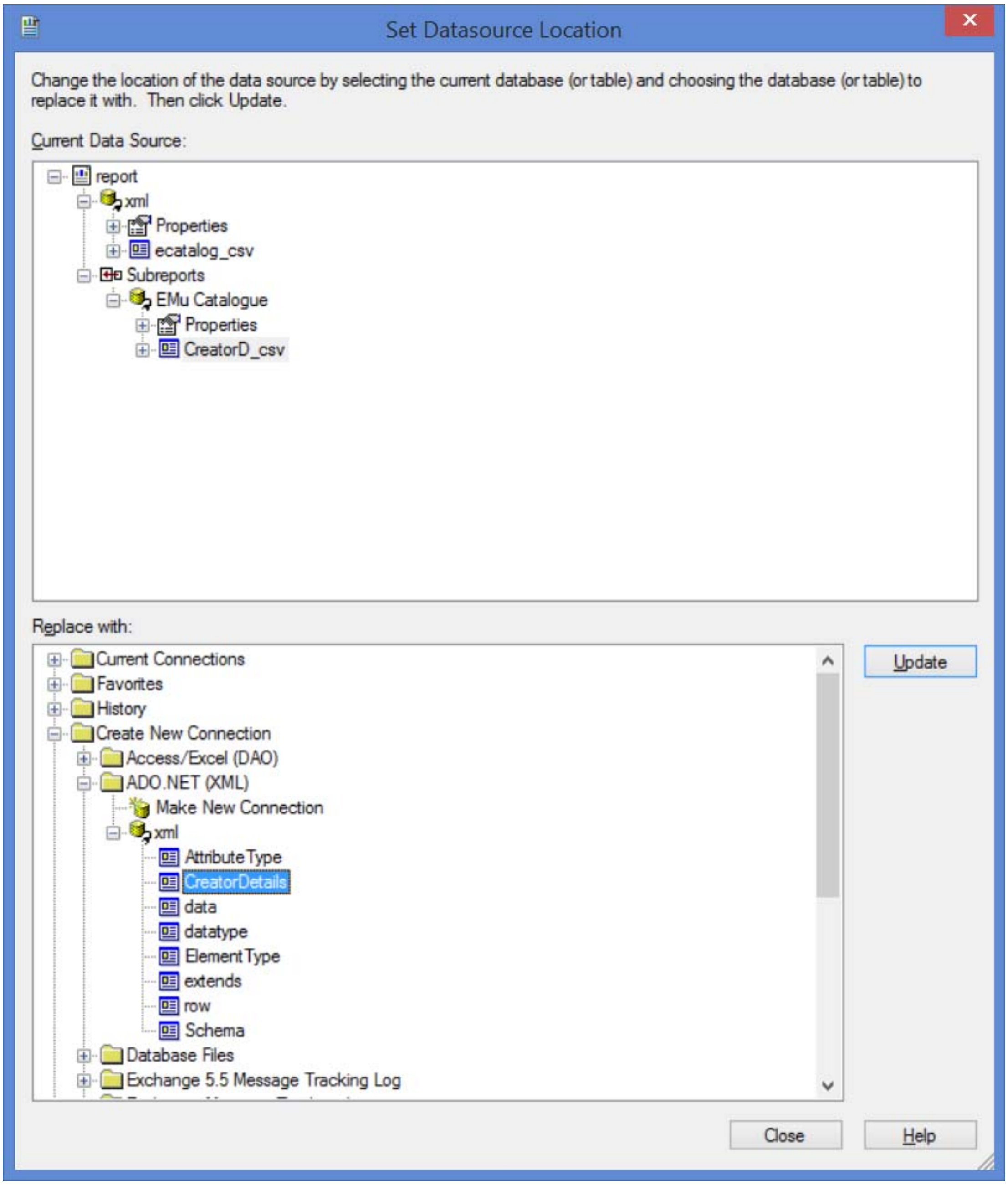
    Once mapped, fields will be moved to the *Mapped Fields* pane:



12. Click OK when all fields are mapped.

    You are returned to the Set Datasource Location dialogue.

13. Repeat the mapping process for all fields (in this example, mapping fields in the `CreatorD_csv` table to the ADO table `CreatorDetails`):



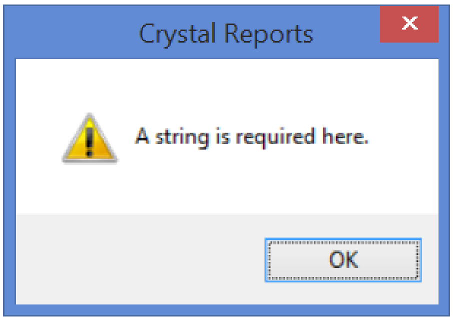
Set Datasource Location

Change the location of the data source by selecting the current database (or table) and choosing the database (or table) to replace it with. Then click Update.

14. Once all fields have been remapped in all tables click **Close**.

    You are returned to the Crystal design window.

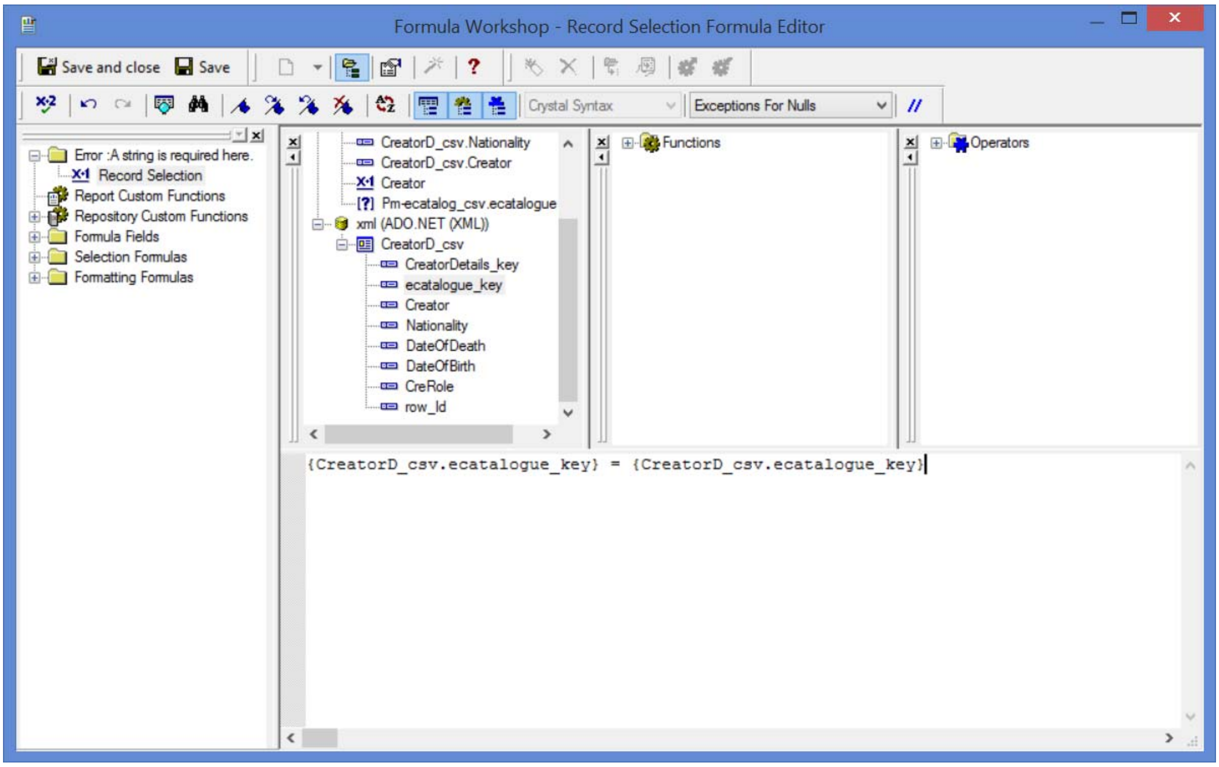
    If you refresh report data at this stage and you have a sub-report object, you will probably receive an error regarding sub-report links, e.g.:



Crystal Reports

A string is required here.

Click OK to open the Record Selection Formula Editor. Change the link key field used by the old ODBC table to the link key field referenced by the ADO RecordSet:



```
{CreatorD_csv.ecatalogue_key} = {CreatorD_csv.ecatalogue_key}
```

The report should now work correctly.

SECTION 3

Microsoft Excel

The following examples demonstrate how to create a basic Excel report using VBA. Please note that it is not the intention of this document to teach VBA.
Excel 2013 was used to create these reports.

How to create an Excel Report using the ADO RecordSet

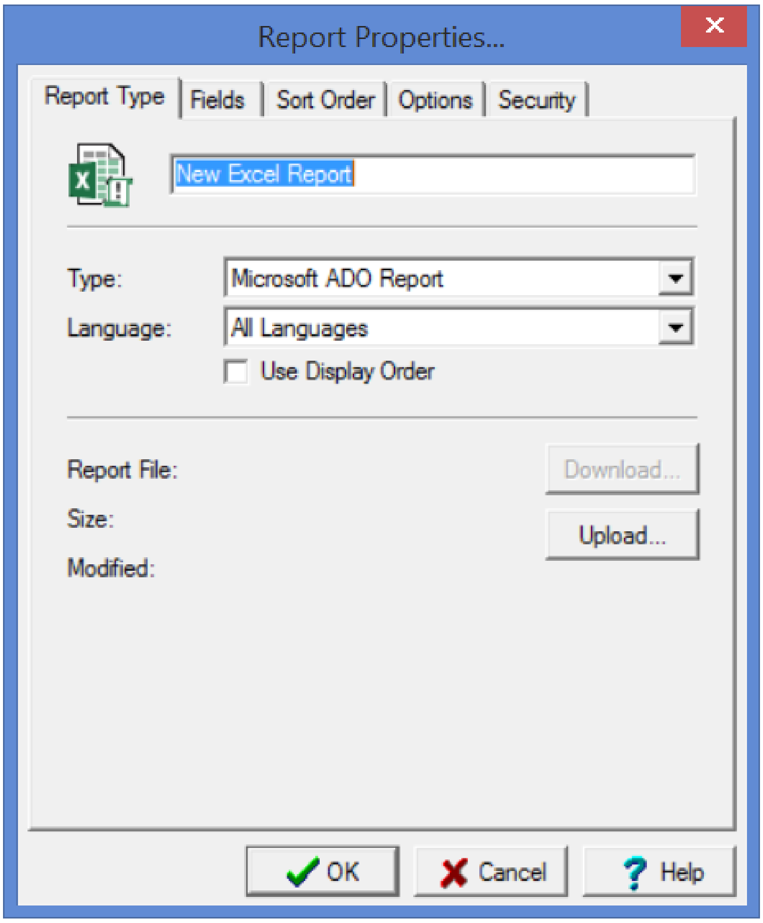
With ODBC data sources there is an option in Excel to open a connection without writing Visual Basic code. This is not the case when making a connection to an ADO record set and it is necessary to write VB code.

Step 1: Create a new report in EMu

This first example is a simple report on single value fields from the Catalogue module. The VBA code provided in this example will automatically populate headings and row data for each column selected.

In EMu:

1. Search for or otherwise list a group of records on which to report.
2. Click **Reports** in the Tool bar to display the Reports box.
3. Click New... in the Reports box.
   The Report Properties box displays.
4. Enter a descriptive name for the Report in the top text field.
5. Select Microsoft ADO Report from the *Type* drop list:



New Excel Report

Type: Microsoft ADO Report

Language: All Languages

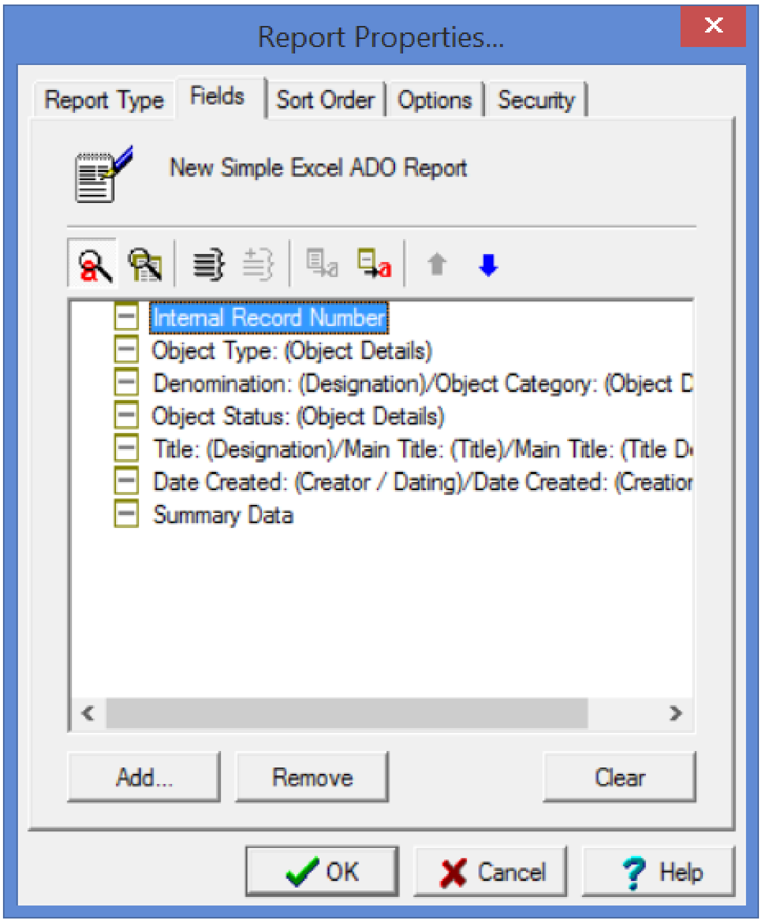
□ Use Display Order

Report File:

Size:

Modified:

6. On the **Fields** tab, add the fields to be included in the report.
   Fields selected in this example are:



New Simple Excel ADO Report

- Internal Record Number
- Object Type: (Object Details)
- Denomination: (Designation)/Object Category: (Object D
- Object Status: (Object Details)
- Title: (Designation)/Main Title: (Title)/Main Title: (Title D
- Date Created: (Creator / Dating)/Date Created: (Creatio
- Summary Data

7. Make changes on the other tabs as required.

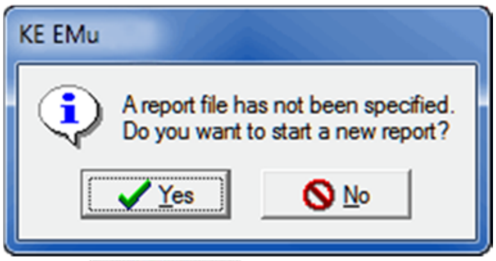
   See the EMu Help for details about setting a sort order, sort options, and security.

8. Click ✓ OK.

   The new report is added to the Reports dialogue box.

9. Select the new report and click Report All... to run the report for the first time.

   A message will display indicating that your report does not exist on the server. This is to be expected as the report has not yet been built in Excel:



A report file has not been specified.
Do you want to start a new report?

10. Click ✓ Yes.

    An xml file is generated and saved with the data from your record set. The location of this file can vary, but typically it can be found in:

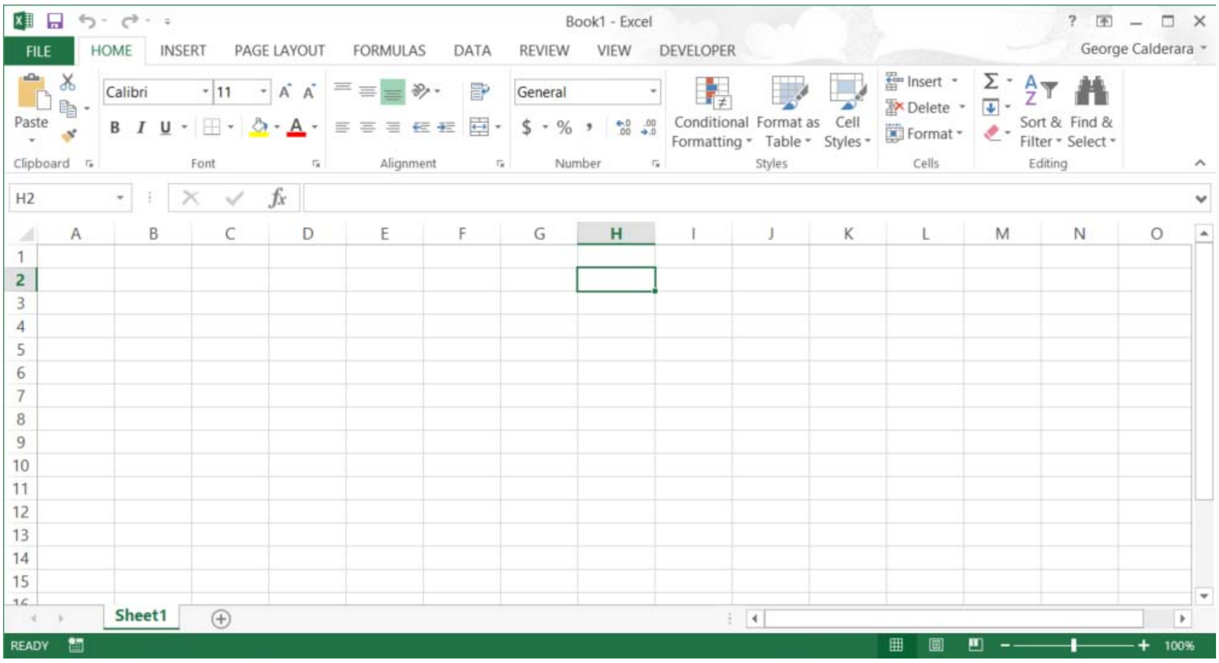
    `C:\Users\[`*your username*`]\AppData\Local\KESoftware\Reports\e[`*module name*`]`

    For example, a report run in the Parties module, will save the xmldata file to:

    `C:\Users\[`*your*

username]`\AppData\Local\KESoftware\Reports\eparties`

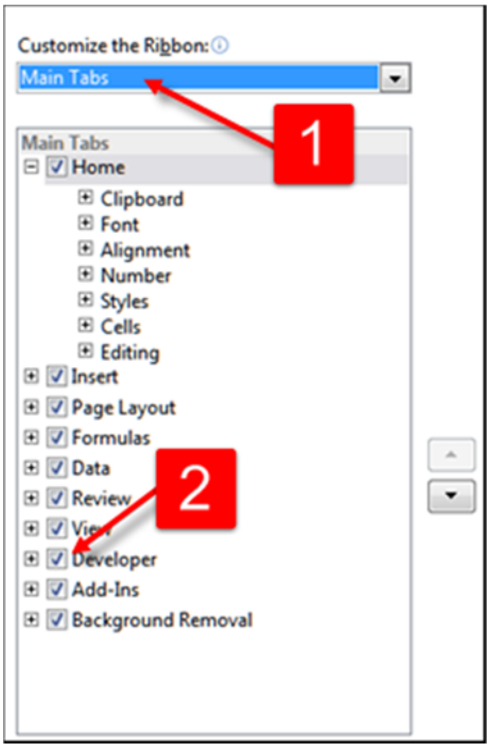
Microsoft Excel will open with a blank worksheet as follows:



Ensure that Excel is setup correctly

If the Developer tab does not display in the Ribbon:

1. Click **File>Options>Customize Ribbon**.
2. With **Main Tabs** selected from the *Customize the Ribbon* drop list (1), select the **Developer** check box (2):

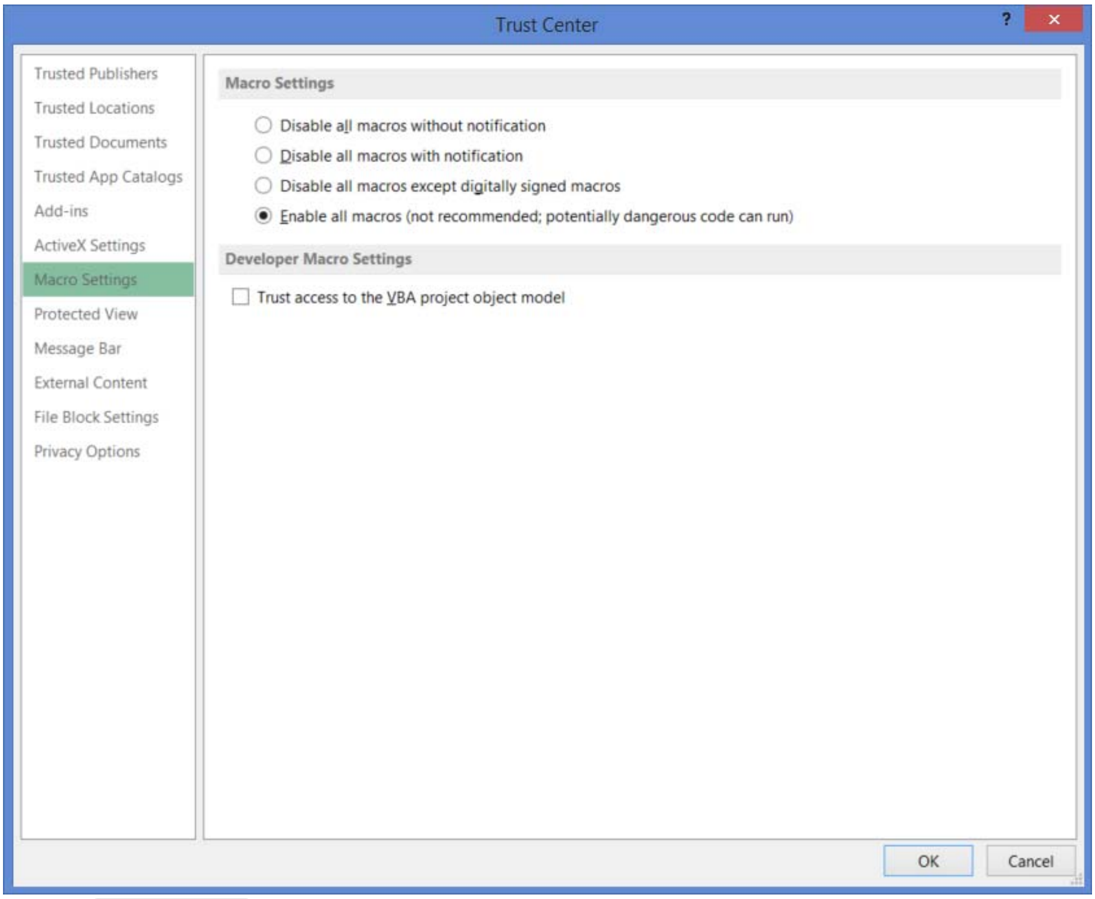


Customize the Ribbon: Main Tabs

Main Tabs
- ☑ Home
  - Clipboard
  - Font
  - Alignment
  - Number
  - Styles
  - Cells
  - Editing
- ☑ Insert
- ☑ Page Layout
- ☑ Formulas
- ☑ Data
- ☑ Review
- ☑ View
- ☑ Developer
- ☑ Add-Ins
- ☑ Background Removal

In order to run the macros that we will create with our reports, we need to ensure that the Security level in Excel is appropriate:

1. On the Developer tab, click ⚠ Macro Security.
2. Enable all macros:



Macro Settings

○ Disable all macros without notification

○ Disable all macros with notification

○ Disable all macros except digitally signed macros

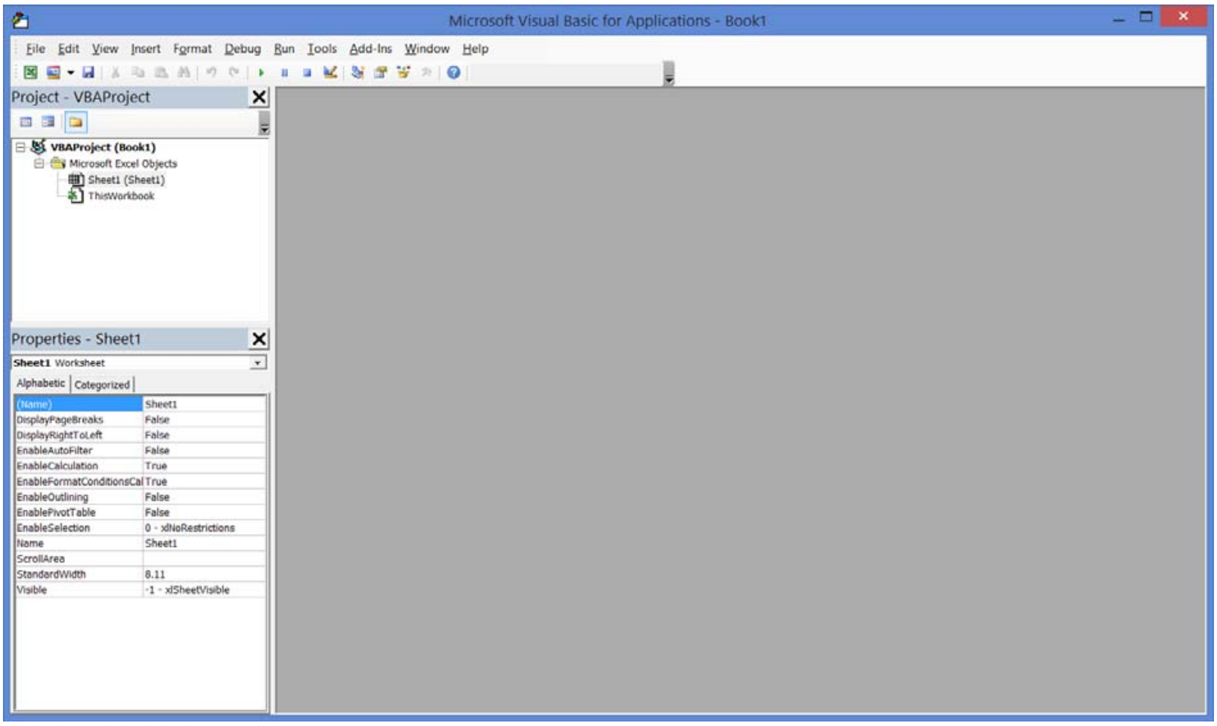
● Enable all macros (not recommended; potentially dangerous code can run)

Developer Macro Settings

□ Trust access to the VBA project object model

3. Click OK to close the Trust Center.

4. On the Developer tab, click Visual Basic.
   The following screen displays:

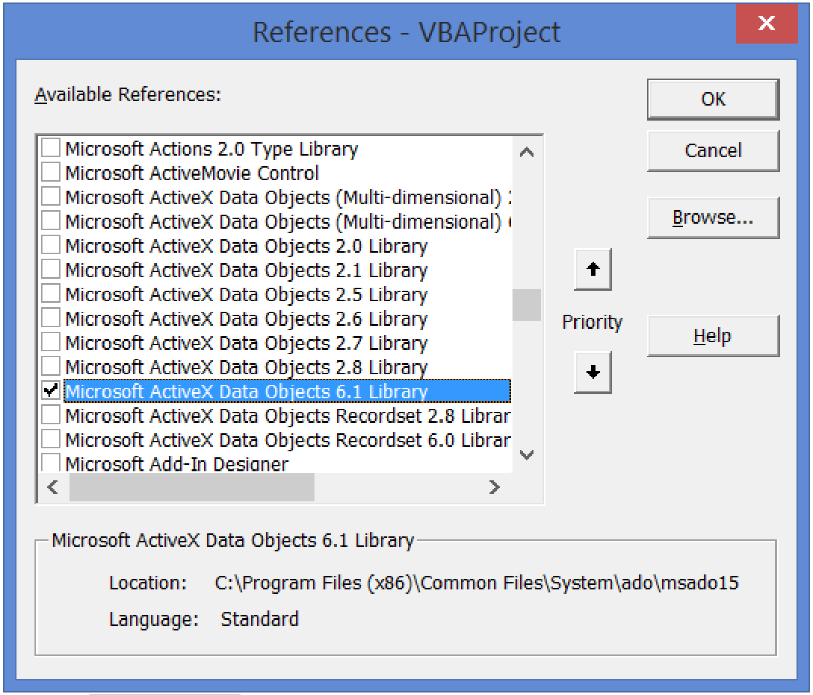


(Name)	Sheet1
DisplayPageBreaks	False
DisplayRightToLeft	False
EnableAutoFilter	False
EnableCalculation	True
EnableFormatConditionsCal	True
EnableOutlining	False
EnablePivotTable	False
EnableSelection	0 - xlNoRestrictions
Name	Sheet1
ScrollArea	
StandardWidth	8.11
Visible	-1 - xlSheetVisible

5. Ensure that the Microsoft ActiveX Data Objects Library is available:

    5.1. Select **Tools>References** in the Menu bar

    In the References – VBAProject dialogue that displays, make sure that the following checkbox is checked:



- ☐ Microsoft Actions 2.0 Type Library
- ☐ Microsoft ActiveMovie Control
- ☐ Microsoft ActiveX Data Objects (Multi-dimensional) :
- ☐ Microsoft ActiveX Data Objects (Multi-dimensional) (
- ☐ Microsoft ActiveX Data Objects 2.0 Library
- ☐ Microsoft ActiveX Data Objects 2.1 Library
- ☐ Microsoft ActiveX Data Objects 2.5 Library
- ☐ Microsoft ActiveX Data Objects 2.6 Library
- ☐ Microsoft ActiveX Data Objects 2.7 Library
- ☐ Microsoft ActiveX Data Objects 2.8 Library
- ☑ Microsoft ActiveX Data Objects 6.1 Library
- ☐ Microsoft ActiveX Data Objects Recordset 2.8 Librar
- ☐ Microsoft ActiveX Data Objects Recordset 6.0 Librar
- ☐ Microsoft Add-In Designer

Microsoft ActiveX Data Objects 6.1 Library

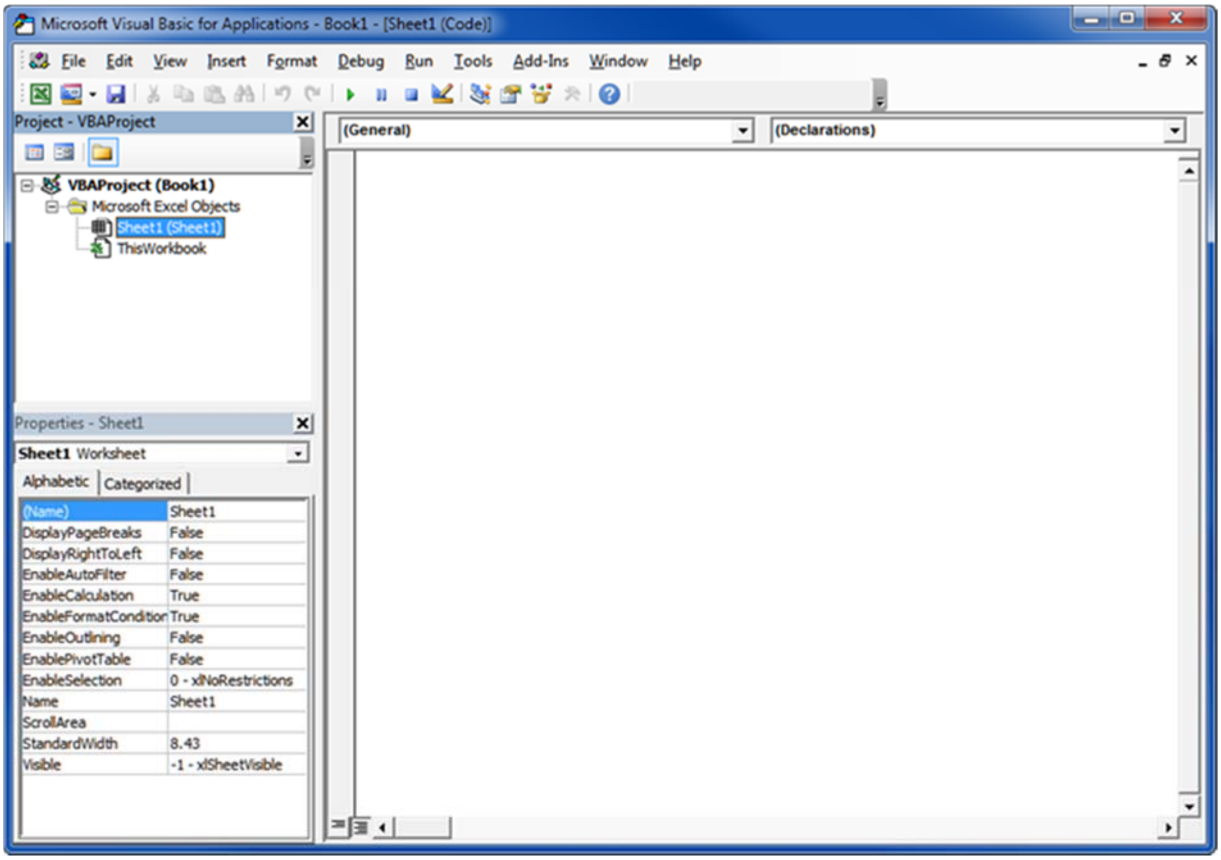
Location: C:\Program Files (x86)\Common Files\System\ado\msado15

Language: Standard

    5.2. Click OK.

Step 2: Design the report in Excel

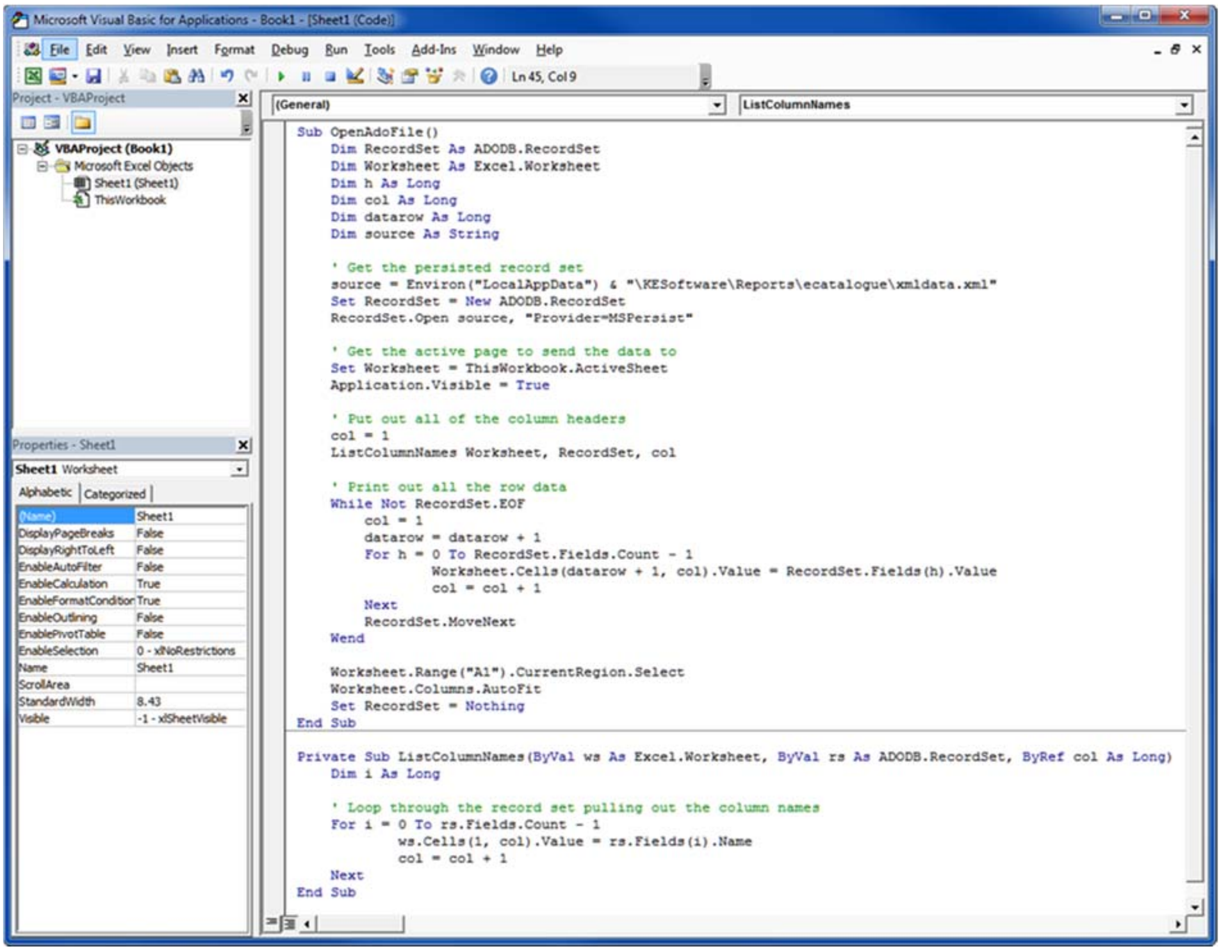
1. Double-click **Sheet1** in the VBAProject pane:



(Name)	Sheet1
DisplayPageBreaks	False
DisplayRightToLeft	False
EnableAutoFilter	False
EnableCalculation	True
EnableFormatConditior	True
EnableOutlining	False
EnablePivotTable	False
EnableSelection	0 - xlNoRestrictions
Name	Sheet1
ScrollArea	
StandardWidth	8.43
Visible	-1 - xlSheetVisible

2. Copy and paste the following VB code:

```
Sub OpenAdoFile()
    Dim RecordSet As ADODB.RecordSet
    Dim Worksheet As Excel.Worksheet
    Dim h As Long
    Dim col As Long
    Dim datarow As Long
    Dim source As String

    ' Get the persisted record set
    source    =    Environ("LocalAppData")    &    "\KESoftware\
Reports\ecatalogue\xmldata.xml"
    Set RecordSet = New ADODB.RecordSet
    RecordSet.Open source, "Provider=MSPersist"

    ' Get the active page to send the data to
    Set Worksheet = ThisWorkbook.ActiveSheet
    Application.Visible = True

    ' Put out all of the column headers
    col = 1
    ListColumnNames Worksheet, RecordSet, col

    ' Print out all the row data
    While Not RecordSet.EOF
        col = 1
        datarow = datarow + 1
        For h = 0 To RecordSet.Fields.count - 1
                Worksheet.Cells(datarow + 1, col).Value =
RecordSet.Fields(h).Value
                col = col + 1
        Next
        RecordSet.MoveNext
    Wend

    Worksheet.Range("A1").CurrentRegion.Select
    Worksheet.Columns.AutoFit
    Set RecordSet = Nothing
End Sub

Private Sub ListColumnNames(ByVal ws As Excel.Worksheet, ByVal
rs As ADODB.RecordSet, ByRef col As Long)
    Dim i As Long
    ' Loop through the record set pulling out the column names
    For i = 0 To rs.Fields.count - 1
            ws.Cells(1, col).Value = rs.Fields(i).Name
            col = col + 1
    Next
End Sub
```

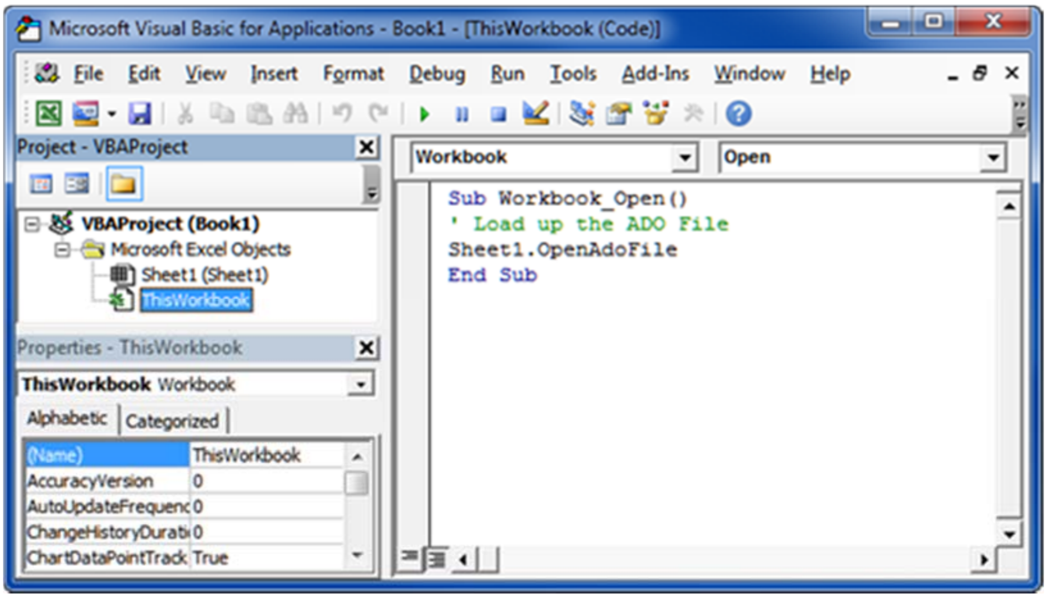


(Name)	Sheet1
DisplayPageBreaks	False
DisplayRightToLeft	False
EnableAutoFilter	False
EnableCalculation	True
EnableFormatConditior	True
EnableOutlining	False
EnablePivotTable	False
EnableSelection	0 - xlNoRestrictions
Name	Sheet1
ScrollArea	
StandardWidth	8.43
Visible	-1 - xlSheetVisible

```
Sub OpenAdoFile()
    Dim RecordSet As ADODB.RecordSet
    Dim Worksheet As Excel.Worksheet
    Dim h As Long
    Dim col As Long
    Dim datarow As Long
    Dim source As String

    ' Get the persisted record set
    source = Environ("LocalAppData") & "\KESoftware\Reports\ecatalogue\xmldata.xml"
    Set RecordSet = New ADODB.RecordSet
    RecordSet.Open source, "Provider=MSPersist"

    ' Get the active page to send the data to
    Set Worksheet = ThisWorkbook.ActiveSheet
    Application.Visible = True

    ' Put out all of the column headers
    col = 1
    ListColumnNames Worksheet, RecordSet, col

    ' Print out all the row data
    While Not RecordSet.EOF
        col = 1
        datarow = datarow + 1
        For h = 0 To RecordSet.Fields.Count - 1
                Worksheet.Cells(datarow + 1, col).Value = RecordSet.Fields(h).Value
                col = col + 1
        Next
        RecordSet.MoveNext
    Wend

    Worksheet.Range("A1").CurrentRegion.Select
    Worksheet.Columns.AutoFit
    Set RecordSet = Nothing
End Sub

Private Sub ListColumnNames(ByVal ws As Excel.Worksheet, ByVal rs As ADODB.RecordSet, ByRef col As Long)
    Dim i As Long

    ' Loop through the record set pulling out the column names
    For i = 0 To rs.Fields.Count - 1
            ws.Cells(1, col).Value = rs.Fields(i).Name
            col = col + 1
    Next
End Sub
```

3. Double-click **ThisWorbook** in the VBAProject pane and copy and paste the following code:

```
Sub Workbook_Open()
' Load up the ADO File
Sheet1.OpenAdoFile
End Sub
```



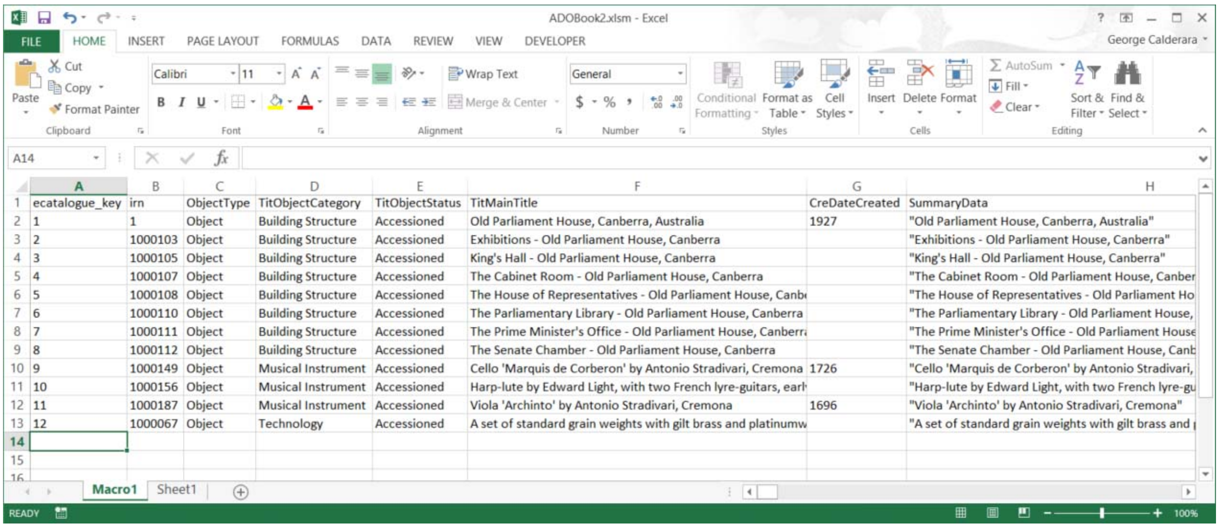
Microsoft Visual Basic for Applications - Book1 - [ThisWorkbook (Code)]
File Edit View Insert Format Debug Run Tools Add-Ins Window Help
Project - VBAProject
VBAProject (Book1)
Microsoft Excel Objects
Sheet1 (Sheet1)
ThisWorkbook
Properties - ThisWorkbook
ThisWorkbook Workbook
Alphabetic
Categorized
Workbook
Open

(Name)	ThisWorkbook
AccuracyVersion	0
AutoUpdateFrequenc	0
ChangeHistoryDurati	0
ChartDataPointTrack	True

```
Sub Workbook_Open()
' Load up the ADO File
Sheet1.OpenAdoFile
End Sub
```

4. Save the report and upload it to your EMu report (page 22) on the Report Type tab of the Report Properties box.

When the report is run in EMu, an Excel report is generated:

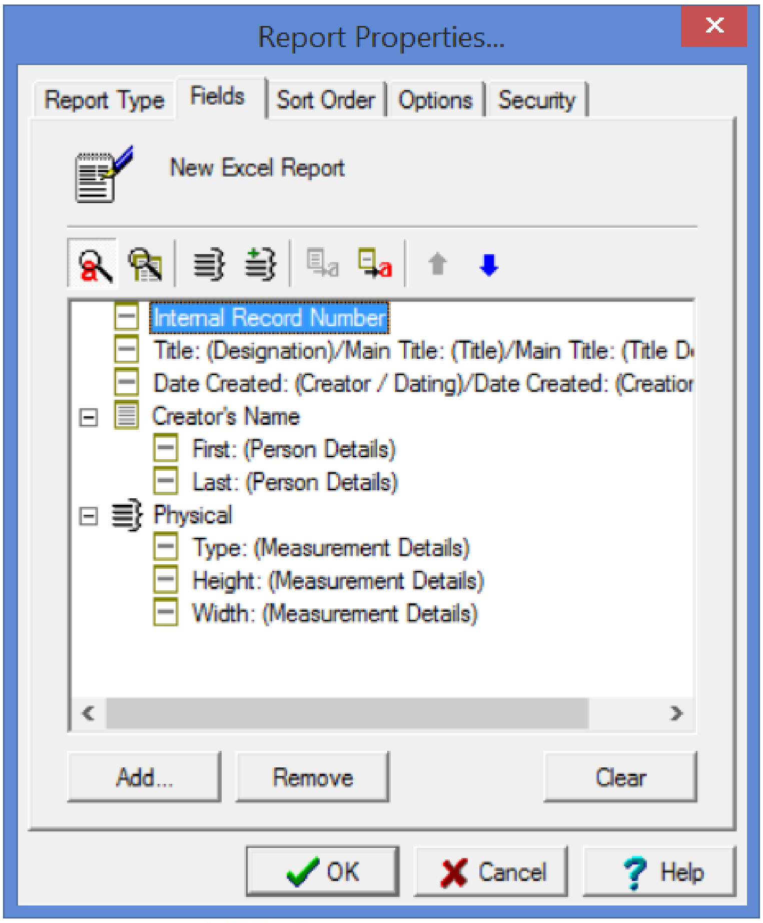


ecatalogue_key	irn	ObjectType	TitObjectCategory	TitObjectStatus	TitMainTitle	CreDateCreated	SummaryData
1	1	Object	Building Structure	Accessioned	Old Parliament House, Canberra, Australia	1927	"Old Parliament House, Canberra, Australia"
2	1000103	Object	Building Structure	Accessioned	Exhibitions - Old Parliament House, Canberra		"Exhibitions - Old Parliament House, Canberra"
3	1000105	Object	Building Structure	Accessioned	King's Hall - Old Parliament House, Canberra		"King's Hall - Old Parliament House, Canberra"
4	1000107	Object	Building Structure	Accessioned	The Cabinet Room - Old Parliament House, Canberra		"The Cabinet Room - Old Parliament House, Canber
5	1000108	Object	Building Structure	Accessioned	The House of Representatives - Old Parliament House, Canb		"The House of Representatives - Old Parliament Ho
6	1000110	Object	Building Structure	Accessioned	The Parliamentary Library - Old Parliament House, Canberra		"The Parliamentary Library - Old Parliament House,
7	1000111	Object	Building Structure	Accessioned	The Prime Minister's Office - Old Parliament House, Canberr		"The Prime Minister's Office - Old Parliament House
8	1000112	Object	Building Structure	Accessioned	The Senate Chamber - Old Parliament House, Canberra		"The Senate Chamber - Old Parliament House, Canb
9	1000149	Object	Musical Instrument	Accessioned	Cello 'Marquis de Corberon' by Antonio Stradivari, Cremona	1726	"Cello 'Marquis de Corberon' by Antonio Stradivari,
10	1000156	Object	Musical Instrument	Accessioned	Harp-lute by Edward Light, with two French lyre-guitars, earl		"Harp-lute by Edward Light, with two French lyre-gu
11	1000187	Object	Musical Instrument	Accessioned	Viola 'Archinto' by Antonio Stradivari, Cremona	1696	"Viola 'Archinto' by Antonio Stradivari, Cremona"
12	1000067	Object	Technology	Accessioned	A set of standard grain weights with gilt brass and platinumw		"A set of standard grain weights with gilt brass and

How to create an Excel Report with nested tables using the ADO RecordSet

1. Repeat Step1: Create a new report in EMu (page 22).

   For this example, the following fields were selected. Note the two nested tables - *Creator's Name* and *Physical*:



New Excel Report

- Internal Record Number
- Title: (Designation)/Main Title: (Title)/Main Title: (Title D
- Date Created: (Creator / Dating)/Date Created: (Creatior
- Creator's Name
  - First: (Person Details)
  - Last: (Person Details)
- Physical
  - Type: (Measurement Details)
  - Height: (Measurement Details)
  - Width: (Measurement Details)

2. In Excel, click Visual Basic on the Developers tab.
3. Double-click **Sheet1** in the VBAProject pane:
4. Copy and paste the following VB code:

```
Sub Read_XML_Data()

    Dim rst As ADODB.Recordset
    Dim Worksheet As Excel.Worksheet
    Dim i As Long
    Dim j As Long
    Dim source As String
    Dim datarow As Long
    Dim saverow As Long
    Dim lastrow As Long
    Dim col As Long

    ' These next declaration is a little odd. Its needed in cases where the entire value
    ' of a nested table is blank. In these cases it is necessary to force a number of columns to be skipped when printing
    ' out field values. Oddly, as long as a nested table has at least one value, then there is no issue.
    ' There is only a need to declare one variable for each nested table.
    ' In this example there are only two nested tables so two declarations are needed
    ' The value assigned to each variable will depend on the number of fields in that nested table.
    ' In this example the first nested table is the CreCreatorRef_tab, which has two fields, i.e. NamFirst and NamLast
    ' and the second nested table, i.e Physical, has 3 fields, i.e. PhyType, PhyHeight and PhyWidth

    Dim firstnestedtable As Long
    Dim secondnestedtable As Long
    Dim nestedtablecount As Long

    firstnestedtable = 2
    secondnestedtable = 3
    nestedtablecount = 1

    ' Get the persisted record set
    source = Environ("LocalAppData") & "\KESoftware\Reports\ecatalogue\xmldata.xml"
    Set rst = New ADODB.Recordset
    rst.Open source, "Provider=MSPersist"

    ' Get the active page to send the data to
    Set Worksheet = ThisWorkbook.ActiveSheet
    Application.Visible = True
    'Add column labels
    Worksheet.Cells(1, 1).Select
    ActiveCell.EntireRow.Insert
    Worksheet.Cells(1, 1).Value = "Record No"
    Worksheet.Cells(1, 2).Value = "IRN No"
    Worksheet.Cells(1, 3).Value = "Title"
    Worksheet.Cells(1, 4).Value = "Date Created"
    Worksheet.Cells(1, 5).Value = "Creator First"
    Worksheet.Cells(1, 6).Value = "Creator Last"
    Worksheet.Cells(1, 7).Value = "Physical Type"
    Worksheet.Cells(1, 8).Value = "Physical Length"
    Worksheet.Cells(1, 9).Value = "Physical Width"

    col = 1
    ' Start printing data from Row 3
    datarow = 3
    lastrow = datarow
    While Not rst.EOF
        col = 1

        If datarow < lastrow Then
            datarow = lastrow
        End If

        For j = 0 To rst.Fields.Count - 1
            If rst.Fields(j).Type = adChapter Then
                If rst.Fields(j).Value.BOF Then
                    Worksheet.Cells(datarow, col).Value = ""
                    If nestedtablecount = 1 Then
                        col = col + firstnestedtable
                        nestedtablecount = nestedtablecount +
1

                    ElseIf nestedtablecount = 2 Then
                        col = col + secondnestedtable
                        nestedtablecount = nestedtablecount +
1

                    End If
                Else
                    If rst.Fields(j).Value.EOF Then
                        Worksheet.Cells(datarow, col).Value =
""

                        If nestedtablecount = 1 Then
                            col = col + firstnestedtable
                            nestedtablecount                 =
nestedtablecount + 1
                        ElseIf nestedtablecount = 2 Then
```

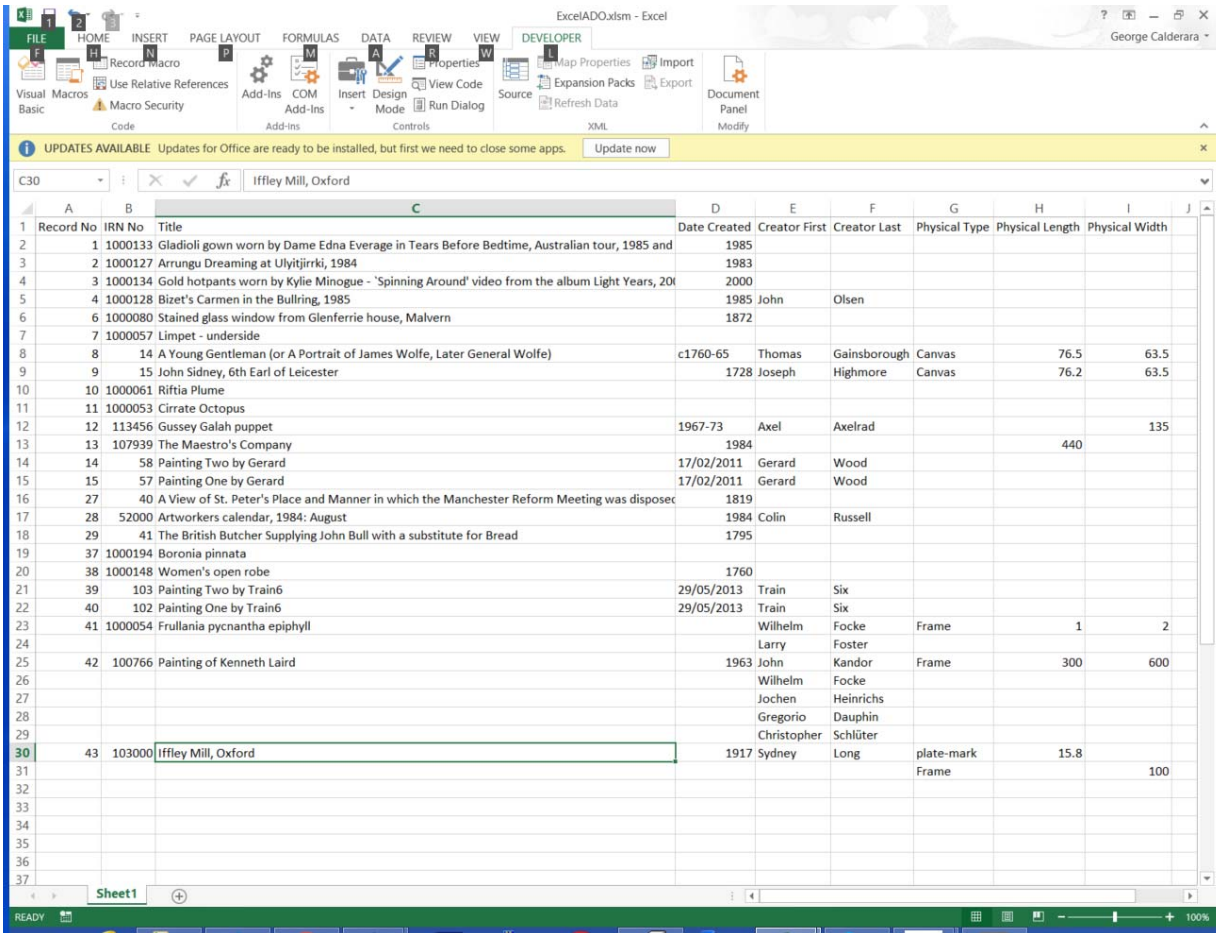
```
                            col = col + secondnestedtable
                            nestedtablecount =
nestedtablecount + 1
                        End If
                    Else
                        saverow = datarow
                        ListNestedValues Worksheet,
rst.Fields(j).Value, col, datarow, lastrow, saverow,
nestedtablecount
                    End If
                End If
            Else
                If IsNull(rst.Fields(j).Value) Then
                    Worksheet.Cells(datarow, col).Value = ""
                Else
                    Worksheet.Cells(datarow, col).Value =
rst.Fields(j).Value
                End If
                col = col + 1
            End If
        Next
        rst.MoveNext
        datarow = datarow + 1
        nestedtablecount = 1
    Wend

    'Closing the recordset.
    rst.Close

    'Release object from memory.

    Worksheet.Range("A1").CurrentRegion.Select
    Worksheet.Columns.AutoFit
    Set rst = Nothing

End Sub

Private Sub ListNestedValues(ByVal ws As Excel.Worksheet,
ByVal rs As ADODB.Recordset, ByRef col As Long, ByRef datarow
As Long, ByRef lastrow As Long, ByRef saverow As Long, ByRef
nestedtablecount As Long)
    Dim i As Long
    Dim j As Long
    Dim startrow As Long

    ' Loop through a nested table pulling out the row values
    j = 0
    startrow = saverow
    While Not rs.EOF
        max = 1
        j = col
        For i = 0 To rs.Fields.Count - 1
            ' Don't print key values
            If rs.Fields(i).Name <> "ecatalogue_key" And
rs.Fields(i).Name <> "CreCreatorRef_key" And rs.Fields(i).Name
<> "Physical_key" _
            Then
                If IsNull(rs.Fields(i).Value) Then
                    ws.Cells(startrow + 1, j).Value = ""
                    j = j + 1
                Else
                    If rs.Fields(i).Type = adChapter Then
                        ListNestedValues ws,
rs.Fields(i).Value, j, datarow, lastrow, saverow,
nestedtablecount
                        datarow = startrow
                    Else
                        ws.Cells(startrow, j).Value =
rs.Fields(i).Value
                        j = j + 1
                    End If
                End If
            End If
        Next
        rs.MoveNext
        startrow = startrow + 1
    Wend

    If (j > 0) Then
        col = j
    End If

    If startrow > lastrow Then
        lastrow = startrow
    End If

    nestedtablecount = nestedtablecount + 1
End Sub
```

5. Double-click **ThisWorbook** in the VBAProject pane and copy and paste the following code:

   ```
   Sub Workbook_Open()
   ' Load up the ADO File
   Sheet1.Read_XML_Data
   End Sub
   ```

6. Save the report and upload it to your EMu report (page 22) on the Report Type tab of the Report Properties box.

When the report is run in EMu, an Excel report is generated:



UPDATES AVAILABLE Updates for Office are ready to be installed, but first we need to close some apps.

C30 Iffley Mill, Oxford

	A	B	C	D	E	F	G	H	I
1	Record No	IRN No	Title	Date Created	Creator First	Creator Last	Physical Type	Physical Length	Physical Width
2	1	1000133	Gladioli gown worn by Dame Edna Everage in Tears Before Bedtime, Australian tour, 1985 and	1985					
3	2	1000127	Arrungu Dreaming at Ulyitjirrki, 1984	1983					
4	3	1000134	Gold hotpants worn by Kylie Minogue - `Spinning Around' video from the album Light Years, 20(	2000					
5	4	1000128	Bizet's Carmen in the Bullring, 1985	1985	John	Olsen			
6	6	1000080	Stained glass window from Glenferrie house, Malvern	1872					
7	7	1000057	Limpet - underside						
8	8	14	A Young Gentleman (or A Portrait of James Wolfe, Later General Wolfe)	c1760-65	Thomas	Gainsborough	Canvas	76.5	63.5
9	9	15	John Sidney, 6th Earl of Leicester	1728	Joseph	Highmore	Canvas	76.2	63.5
10	10	1000061	Riftia Plume						
11	11	1000053	Cirrate Octopus						
12	12	113456	Gussey Galah puppet	1967-73	Axel	Axelrad			135
13	13	107939	The Maestro's Company	1984				440	
14	14	58	Painting Two by Gerard	17/02/2011	Gerard	Wood			
15	15	57	Painting One by Gerard	17/02/2011	Gerard	Wood			
16	27	40	A View of St. Peter's Place and Manner in which the Manchester Reform Meeting was disposec	1819					
17	28	52000	Artworkers calendar, 1984: August	1984	Colin	Russell			
18	29	41	The British Butcher Supplying John Bull with a substitute for Bread	1795					
19	37	1000194	Boronia pinnata						
20	38	1000148	Women's open robe	1760					
21	39	103	Painting Two by Train6	29/05/2013	Train	Six			
22	40	102	Painting One by Train6	29/05/2013	Train	Six			
23	41	1000054	Frullania pycnantha epiphyll		Wilhelm	Focke	Frame	1	2
24					Larry	Foster			
25	42	100766	Painting of Kenneth Laird	1963	John	Kandor	Frame	300	600
26					Wilhelm	Focke			
27					Jochen	Heinrichs			
28					Gregorio	Dauphin			
29					Christopher	Schlüter			
30	43	103000	Iffley Mill, Oxford	1917	Sydney	Long	plate-mark	15.8	
31							Frame		100
32									
33									
34									
35									
36									
37									

SECTION 4

Registry entries

The Type Registry entry indicates which export type to use for each report request.

The format of this Registry entry is ;

`System|Setting|Reports|Type|Crystal CSV|`*value*

value is `0` or `1`:

`0` Generates data in the existing format.

`1` Generates data in the new Crystal ODBC format.

If this entry is not present, a *value* of `0` is assumed.

`System|Setting|Reports|Type|Crystal ADO|`*value*

value is `0` or `2`:

`0` Generates data in the existing format.

`2` Generates data in the new Crystal ADO record set.

If this entry is not present, a *value* of `0` is assumed.

`System|Setting|Reports|Type|Microsoft ADO|`*value*

where:

value is `0` or `3`:

`0` Generates data in the existing format.

`3` Generates data in the new Microsoft ADO format.

If this entry is not present, a *value* of `0` is assumed.

Index