

Elixir Repertoire Designer

Tutorial Guide for Creating a Composite Data Source

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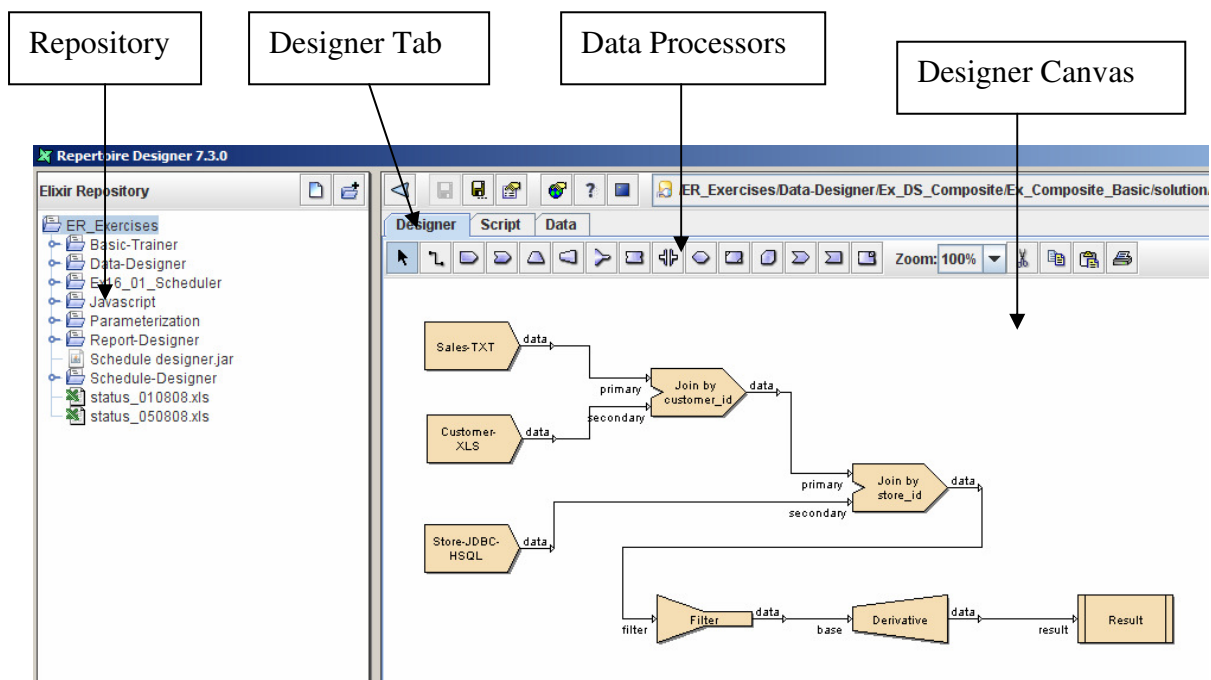
1. Introduction

The purpose of this document serves as a basic self-tutorial guide for users to familiarise themselves with the Elixir Repertoire Data Designer. These step-by-step exercises will assist users in understanding the following processes:

1. Creating a composite data source
2. Implementing primary data sources
3. Implementing “Join” processors
4. Implementing “Filter” processor
5. Implementing “Derivative” processor
6. Creating overall process flow in the composite

2. Elixir Repertoire Report Designer Environment

Below is a brief overview of the work area that users will be working with throughout these exercises:



3. Orientation and Shortcut Commands

General Shortcuts:

Actions	Shortcut Commands
Copy	Ctl + "C"
Paste	Ctl + "V"
Undo	Ctl + "Z"

For Repository:

Actions	Shortcut Commands
Copy a File	Highlight, Ctrl+Move mouse
Move a File	Highlight, Move mouse
Copy Repository URL	Right Click, select "Copy URL"
Invoke Menus on Folder	Right Click on Folder
Add element to Report Design Area	Click on Report Element, Click on empty Canvas Area
Add/Remove ruler	Click on Ruler Area (Horizontal/Vertical)

Report Layout:

How to select more than 1 element

1. Click and Drag Select elements or
2. Select 1 report element and Ctl-Select another

4. Installing Elixir Repertoire Designer

4.1. Installation Requirements

Elixir Repertoire supports any Java SE version 5.0 Runtime Environment (JRE) update 12 (or later) compliant platforms such as the following:

- Windows
- Solaris (including 10)
- AIX
- Linux
- Macintosh OS X (10.2 or higher)

4.2. Software Requirements

Elixir Repertoire requires the following software to run. Please make sure you install the software prior to installing Elixir Repertoire:

- The software requires a Java SE version 5.0 Runtime Environment (JRE) update 12 or later. If you do not have Java pre-installed, please download and install it from: <http://java.sun.com/javase/downloads/index.jsp> or from your preferred vendor.
- Adobe Acrobat PDF viewer plug-in on the client web-browser

4.3. Hardware Requirements

Elixir software is able to run on a usual entry level system available in the market. As long as the operating system and the Java runtime are able to operate smoothly, Elixir software itself only requires an incremental amount of RAM.

You may refer to the “System requirements for the Java Runtime Environment 5.0” at <http://www.java.com/en/download/help/5000011000.xml>.

For Elixir Repertoire Designer, a recommended minimum RAM configuration would be 256MB, and for more advanced usage, 512MB is recommended.

In addition, a total of 150MB disk space is recommended for the following:

- 50 MB for Elixir Repertoire Designer application files, documentations and samples
- Up to 80 MB for the Java runtime (depending on the version)
- 20 MB reserved space for other 3rd party add-on software like database drivers.

4.4. Before Installation

Ensure you have Administrator privileges. If you are installing Elixir Repertoire on a computer running any of the supported operating systems (see Installation Requirements above), you must have Administrator privileges. The installation process creates registry entries and may update some system files that require Administrator rights.

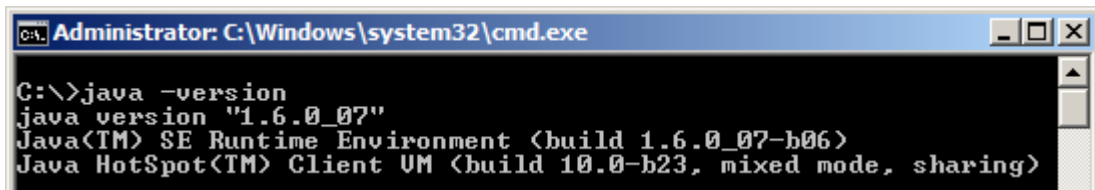
4.5. Ensure Java is Pre-Installed

The software requires a Java SE version 5.0 Runtime Environment (JRE) update 12 or later. If you do not have Java pre-installed, please download and install it from <http://java.sun.com/javase/downloads/index.jsp> or from your preferred vendor.

To find out if your system has the correct version of Java installed, go to the command prompt and key in the following:

```
java -version
```

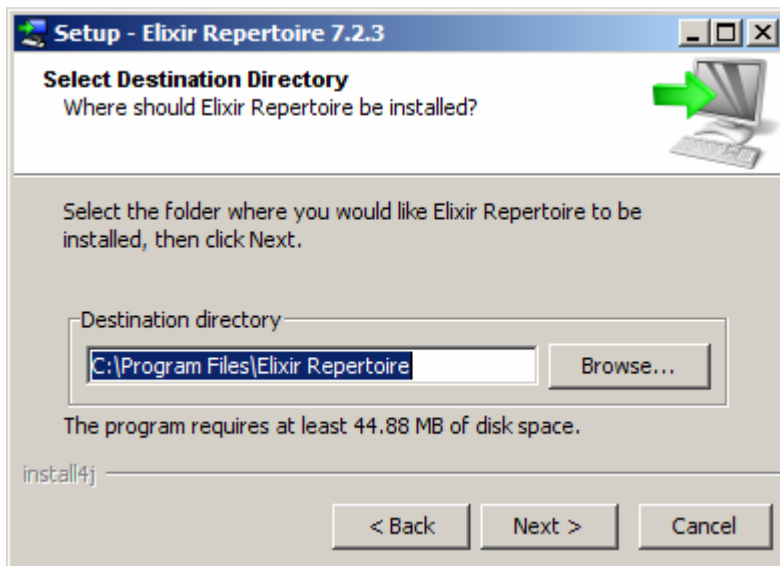
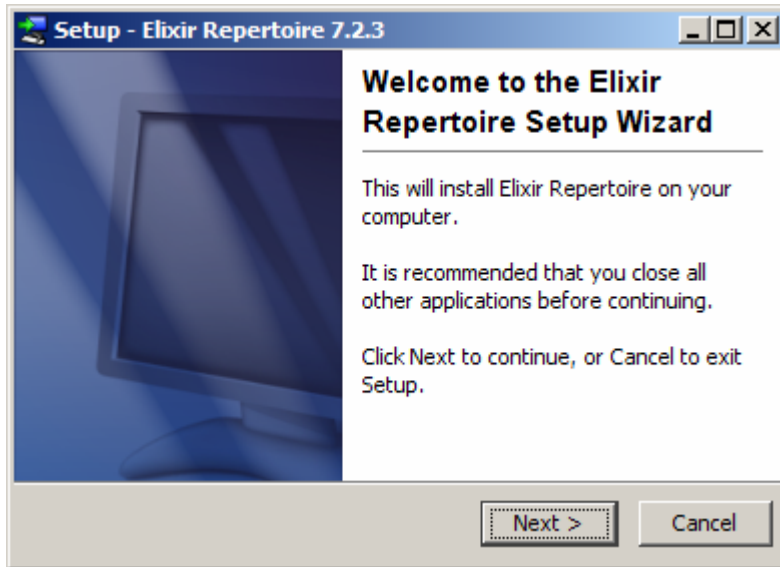
The system will return the following as an example:



```
Administrator: C:\Windows\system32\cmd.exe
C:\>java -version
java version "1.6.0_07"
Java(TM) SE Runtime Environment (build 1.6.0_07-b06)
Java HotSpot(TM) Client VM (build 10.0-b23, mixed mode, sharing)
```

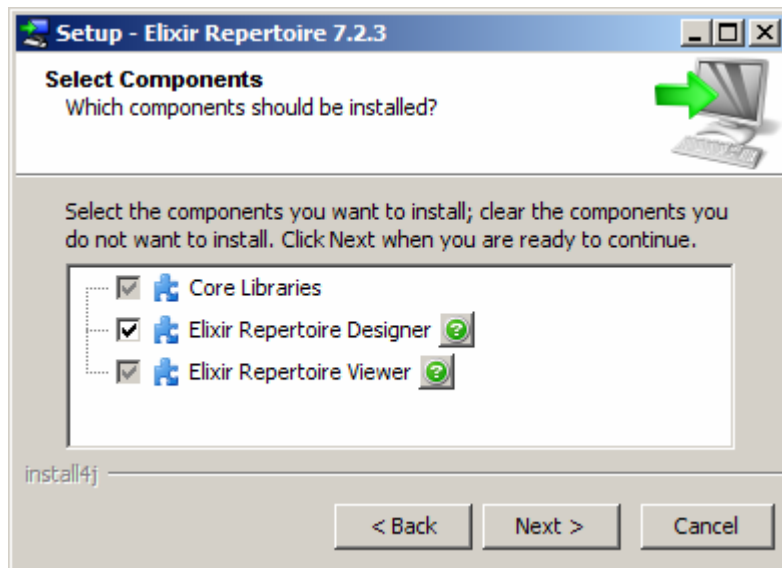
4.6. Installing Elixir Repertoire

- For any Java enabled platforms, please unzip Repertoire7.x.x.zip to a specific installation path. Deploy the database drivers and license keys accordingly (see “Installing Database Drivers and Additional Class Files” and “Deploying the License Key”). Create a start up shell script (.sh file) as shown in “Running Elixir Repertoire Designer in Debug Mode”.
- For Windows Platform, please click and run Elixir Repertoire Installer 7.x.x.exe to begin guided installation.

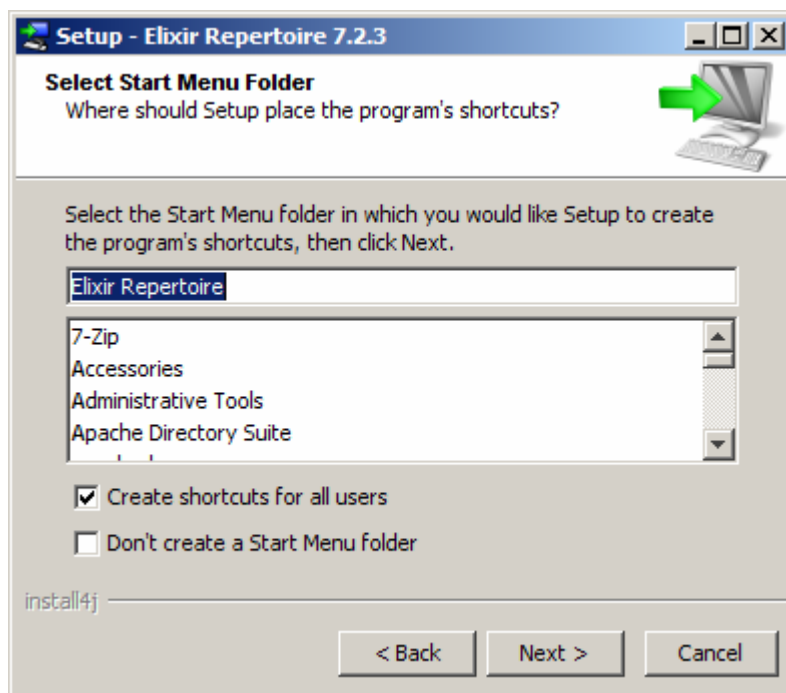


An installation path dialog box appears for you to choose your desired installation location. Default installation directory is C:\Program Files\Elixir Repertoire

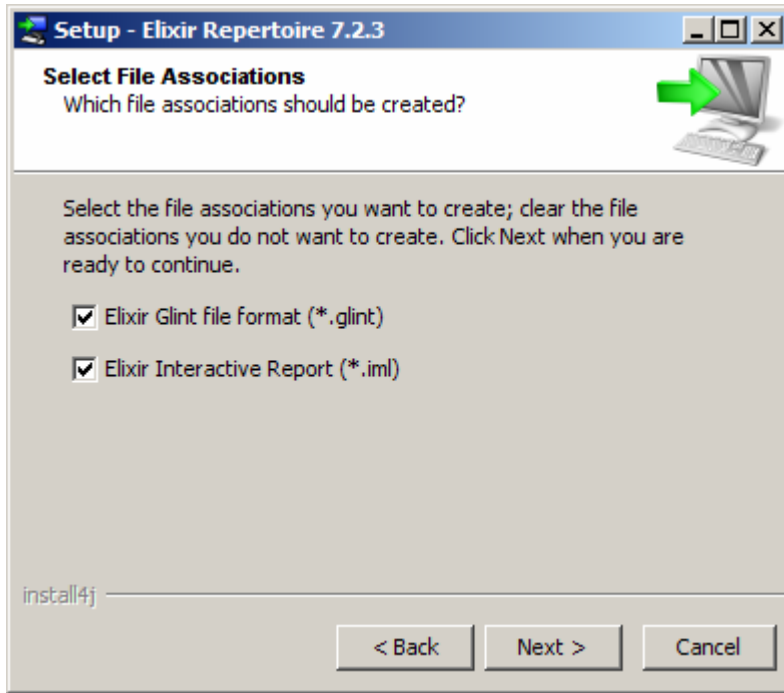
Do take note that if you are installing an upgrade of Elixir Repertoire, the installation wizard will prompt you with a warning, stating that the new version will be installed at the default location, thus overwriting your old version of Elixir Repertoire. If you wish to keep the previous version, do change the installation path to prevent overwriting the old version.



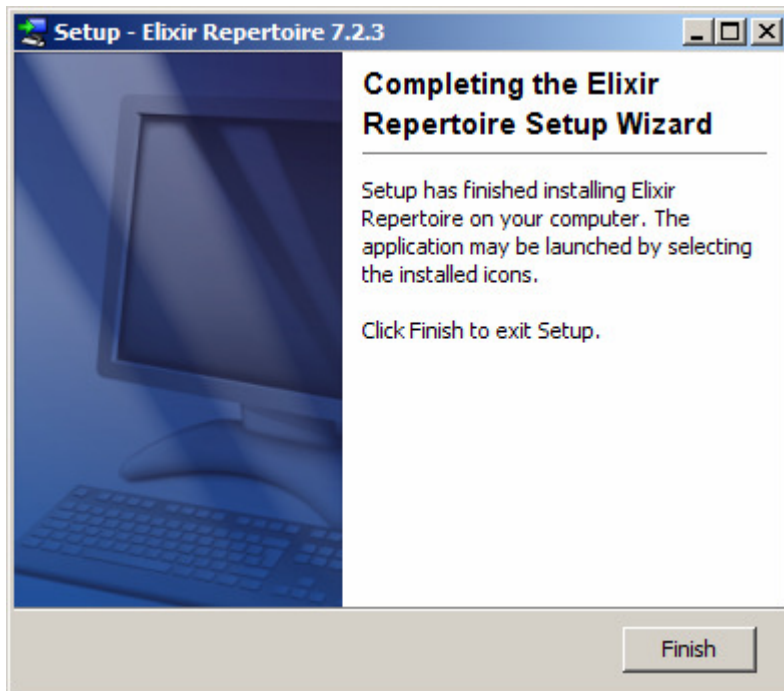
You will then be prompted to select the various components for installation. Leave the selection as is and click “Next” to continue.



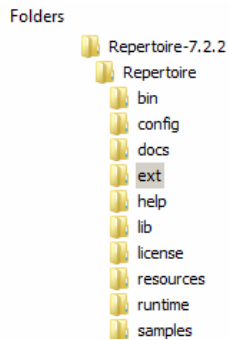
Change the name of the start menu folder containing the Elixir Repertoire shortcuts and leave it as is and click “Next” to continue with the installation.



Click “Next” to proceed with the installation. Depending on the speed, the installation of Elixir Repertoire will be completed in a few minutes.



4.7. Installing Database Drivers and Additional Class Files



The installation of database drivers and additional Java class files can be installed in the /ext directory of the Repertoire installation.

Database drivers must support JDBC connectivity and be packaged as jar files. An example of a typical /ext directory may look like the following example:

Name	Date modified	Type	Size	Tags
Customers	26/1/2006 5:52 AM	Executable Jar File	3 KB	
Horizontal_Tiling	9/10/2007 10:28...	Executable Jar File	6 KB	
hsqldb	20/8/2005 7:08 PM	Executable Jar File	616 KB	
JSQConnect_ver_4.0	4/9/2007 11:47 AM	Executable Jar File	485 KB	
labels	6/10/2006 5:02 PM	Executable Jar File	3 KB	
LicenseGenerator	5/10/2007 9:38 AM	Executable Jar File	5 KB	
mysql	4/9/2007 1:37 PM	Executable Jar File	436 KB	
mysql-3.2.0	4/9/2007 1:37 PM	Executable Jar File	395 KB	
ojdbc6	4/10/2007 11:13...	Executable Jar File	1,932 KB	
postgresql-8.3-603.jdbc3	18/6/2008 6:21 PM	Executable Jar File	437 KB	
RB	4/1/2008 3:08 PM	Executable Jar File	45 KB	
ReportUtils	16/5/2008 5:08 PM	Executable Jar File	17 KB	
SecurityManagementReport.bin	3/4/2006 3:48 PM	BIN File	4 KB	
SLCReconciliationReport.bin	3/4/2006 6:22 PM	BIN File	2 KB	
sqjjdbc	4/9/2007 1:36 PM	Executable Jar File	248 KB	

4.8. Deploying the License Key

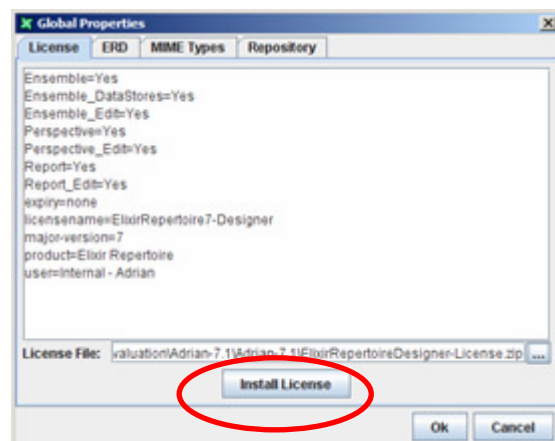
Copy the license key, e.g. ElixirRepertoire7-Designer-license.txt or ElixirRepertoire7-Designer-license.zip to \$USER_HOME directory, eg. C:\Documents and Settings\User before running Elixir Repertoire Designer.

If the application starts up with a message that the license key cannot be found, access the “Global Properties” to manually install the license key.



At the “Global Properties” dialog box, access the first tab, “License” and click on the “...” button to select the location of your license key. Select the license key and click “Open”. The “Global Properties” dialog box will now display the licensing details.

Click on “Install License” to deploy the license key followed by “Ok” when done.



4.9. Starting Elixir Repertoire Designer

Once the key is deployed, run the software from the start menu by accessing the Elixir Repertoire folder followed by the Elixir Repertoire icon.



Alternatively, the Elixir Repertoire executable can also be accessed from the /bin directory of the Repertoire installation path.

Name	Date modified	Type	Size
Elixir Repertoire	25/4/2008 1:10 PM	Application	158 KB
Elixir Repertoire.exe...	25/4/2008 1:10 PM	VMOPTIONS File	1 KB
Elixir Report Interact...	25/4/2008 1:10 PM	Application	158 KB
Elixir Report Interact...	25/4/2008 1:10 PM	VMOPTIONS File	1 KB
ERI-Launcher	25/4/2008 1:10 PM	Executable Jar File	14 KB
migrate	25/4/2008 1:10 PM	Windows Batch File	1 KB
migrate.sh	25/4/2008 1:10 PM	SH File	1 KB
Repertoire-Launcher	25/4/2008 1:10 PM	Executable Jar File	66 KB

4.10. Running Elixir Repertoire Designer in Debug Mode

```
RunRep7.2.2 - Shortcut
file:/C:/Program_Files/Repertoire-7.2.2/Repertoire/lib/jcommon.jar
file:/C:/Program_Files/Repertoire-7.2.2/Repertoire/lib/jfreechart.jar
file:/C:/Program_Files/Repertoire-7.2.2/Repertoire/lib/jhall.jar
file:/C:/Program_Files/Repertoire-7.2.2/Repertoire/lib/js.jar
file:/C:/Program_Files/Repertoire-7.2.2/Repertoire/lib/jxl.jar
file:/C:/Program_Files/Repertoire-7.2.2/Repertoire/lib/log4j.jar
file:/C:/Program_Files/Repertoire-7.2.2/Repertoire/lib/Repertoire.jar
file:/C:/Program_Files/Repertoire-7.2.2/Repertoire/lib/tagsoup-1.2.jar
0 AWT-EventQueue-0 INFO com.elixirtech.util.Logging - Log4J logging enabled
Unable to configure substance: java.lang.ClassNotFoundException: org.jvnet.substance.SubstanceLookAndFeel
2848 Thread-3 INFO com.elixirtech.arch.repository.StandaloneRepositoryExplorer - loadFileSystems: Repertoire
3104 AWT-EventQueue-0 INFO com.elixirtech.arch.Elixir - Loading extensions
3105 AWT-EventQueue-0 INFO com.elixirtech.arch.Elixir - Extension directory: C:\Program_Files\Repertoire-7.2.2\Repertoire\ext
3109 AWT-EventQueue-0 INFO com.elixirtech.arch.Elixir - Loading extension information from C:\Program_Files\Repertoire-7.2.2\Repertoire\ext\postgresql-8.3-603.jdbc3.jar
3116 AWT-EventQueue-0 INFO com.elixirtech.arch.Elixir - No Elixir-Extension defined in C:\Program_Files\Repertoire-7.2.2\Repertoire\ext\postgresql-8.3-603.jdbc3.jar
3123 AWT-EventQueue-0 INFO com.elixirtech.arch.Elixir - All extensions loaded
2737543 AWT-EventQueue-0 INFO com.elixirtech.arch.repository.BasicRepositoryAct
```

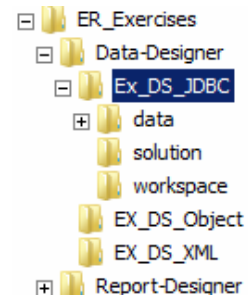
Running Elixir Repertoire Designer in debug mode allows users to monitor and track any errors arising from the design of their report templates and data sources. To run in debug mode, open a text editor and input the following as a single line, modifying the text in bold according to your own environment:

```
"C:\Program_Files\java\jre1.6.0_02\bin\java.exe" -mx512m -classpath
.\Repertoire-Launcher.jar com.elixirtech.repertoire.Launcher
```

Save the text as a batch file (.bat) in the /bin directory of the Repertoire Designer installation and execute this .bat to run in debug mode.

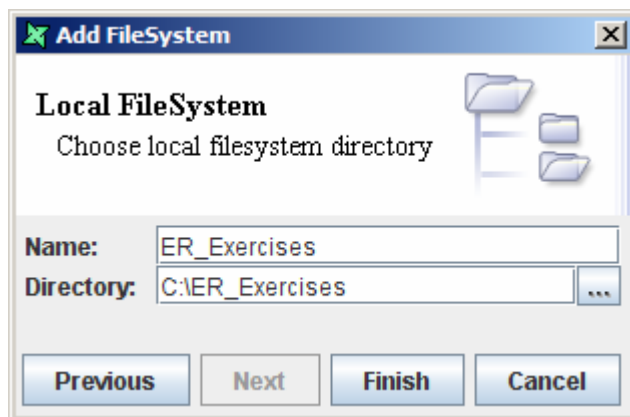
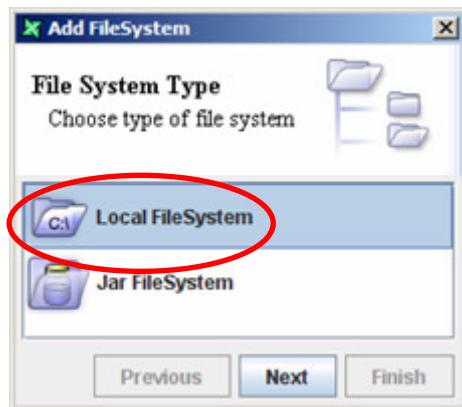
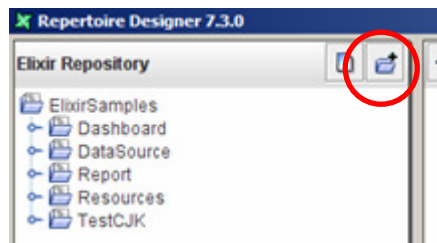
5. Preparing the Exercise Environment

This exercise is part of a series of self-help practices and tutorials to get users familiarised with the Repertoire Designer. Each exercise is categorised based on specific features. To get started, create an “ER_Exercises” folder and a “Data-Designer” subfolder if you have not done so from previous exercises. Unzip the “Ex_Composite_Basic” folder into “ER_Exercises/Data-Designer” so that the directory structure would be “ER_Exercises/Data-Designer/Ex_DS_Composite/Ex_Composite_Basic” as shown in the example.

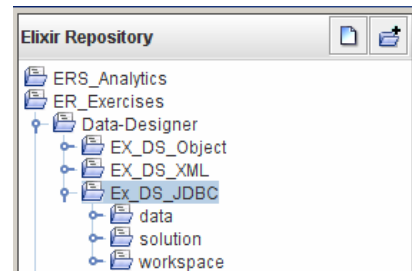


In the Repertoire Designer environment, the “ER_Exercise” folder needs to be added to the repository to access the files. To begin, click on the “Add Filesystem” button.

Highlight the option “Local Filesystem” and click on “Next”. Go to “Directory” and click on the “...” button. Select the “ER_Exercises” directory and click “Open”. In the “Name” field, input “ER_Exercises”. The pop dialog should look like the example below. Click “Finish” to continue.



The “ER_Exercises” will appear in the repository as shown in the example.



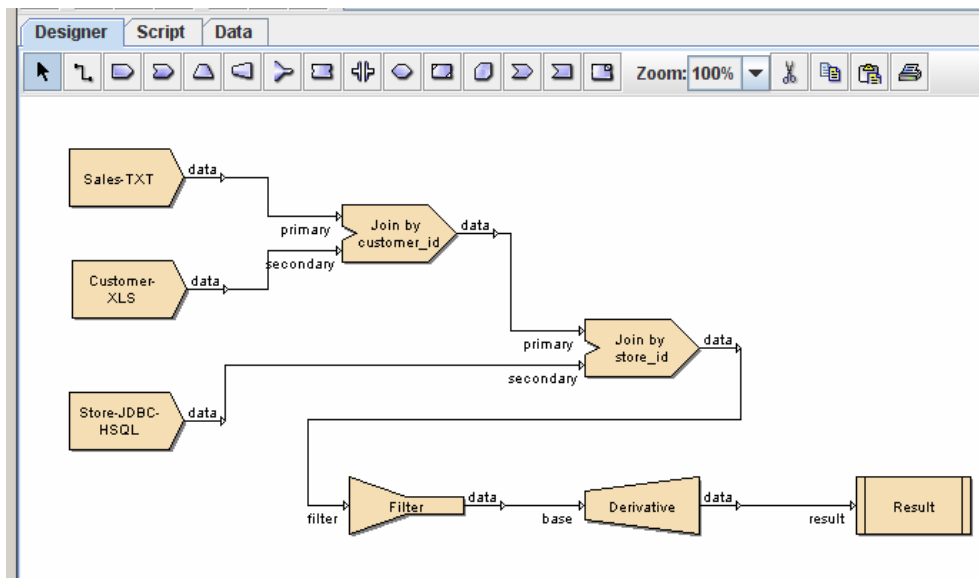
If the “ER_Exercises” directory and “Data-Designer” sub directory were created from a previous exercise, unzip the “Ex_Composite_Basic” exercise directory accordingly. Ensure that the folder structure appears accordingly in the example shown.

6. Composite Data Sources

Composite data sources enable users to retrieve data from a range of disparate data sources and have them merged, cleansed or massaged using the various data processors.

Users are then able to either save the processed data to a series of flat files (e.g. excel, xml, csv, etc) or insert the data into a database through a JDBC connection. The composite data source is part of the data designer which can be saved on the Repertoire Server and activated through a job trigger to automate the data retrieval and cleansing process.

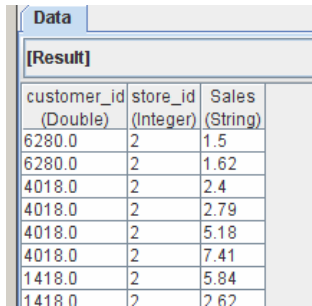
Likewise, the composite data source is an additional data layer for report template designs enabling users to separate business logic from template design for more streamlined development.



7. Data Sources

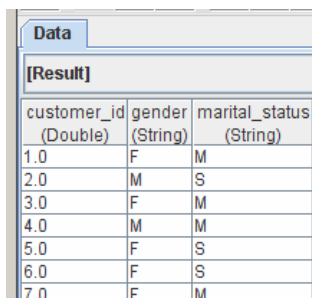
For this exercise three types of data sources will be used in the composite to demonstrate the ability to seamlessly merge and process data:

i) Text data source (Sales-TXT.ds)



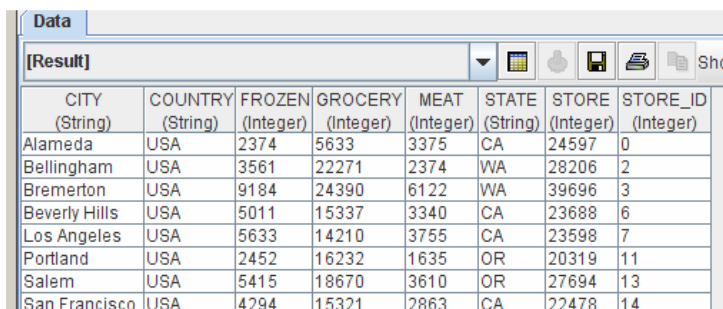
customer_id (Double)	store_id (Integer)	Sales (String)
6280.0	2	1.5
6280.0	2	1.62
4018.0	2	2.4
4018.0	2	2.79
4018.0	2	5.18
4018.0	2	7.41
1418.0	2	5.84
1418.0	2	2.62

ii) Excel data source (Customer-XLS.ds)



customer_id (Double)	gender (String)	marital_status (String)
1.0	F	M
2.0	M	S
3.0	F	M
4.0	M	M
5.0	F	S
6.0	F	S
7.0	F	M

iii) JDBC data source (Store-JDBC-HSQL.ds)

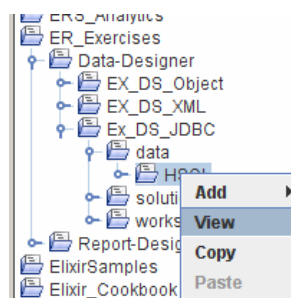


CITY (String)	COUNTRY (String)	FROZEN (Integer)	GROCERY (Integer)	MEAT (Integer)	STATE (String)	STORE (Integer)	STORE_ID (Integer)
Alameda	USA	2374	5633	3375	CA	24597	0
Bellingham	USA	3561	22271	2374	WA	28206	2
Bremerton	USA	9184	24390	6122	WA	39696	3
Beverly Hills	USA	5011	15337	3340	CA	23688	6
Los Angeles	USA	5633	14210	3755	CA	23598	7
Portland	USA	2452	16232	1635	OR	20319	11
Salem	USA	5415	18670	3610	OR	27694	13
San Francisco	USA	4294	15321	2863	CA	22478	14

8. Starting a Demo Database

For this exercise a demo database server will be used to simulate creating a JDBC connection.

Go to “data” and right click on the “HSQL” folder. Select “View”. A pop up window showing the folder’s contents will appear. Double click on “runServer.bat” to start the demo server.

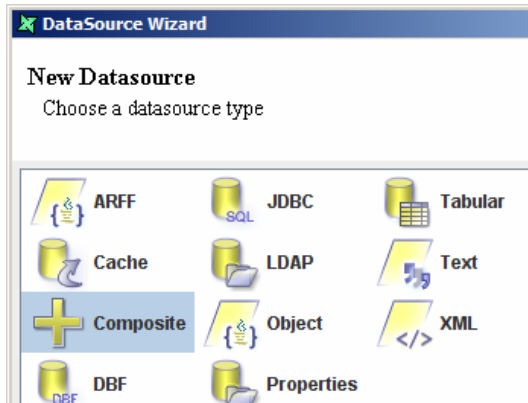
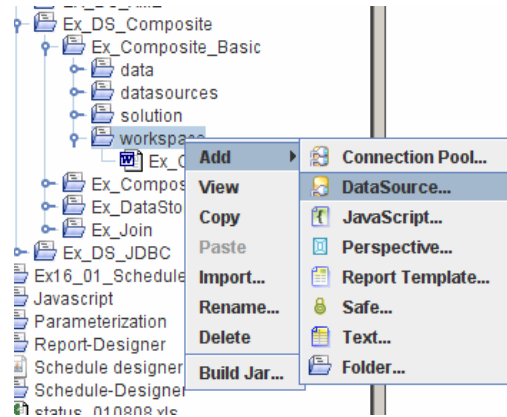


```
C:\Windows\system32\cmd.exe
C:\Users\Adrian\Documents\SCourt\Basic-Trainer\Ex_JDBC_HSQL\data>java -classpath
hsqldb.jar org.hsqldb.Server
[Server@1d58aae]: [Thread[main,5,main]]: checkRunning(false) entered
[Server@1d58aae]: [Thread[main,5,main]]: checkRunning(false) exited
[Server@1d58aae]: Startup sequence initiated from main() method
[Server@1d58aae]: Loaded properties from [C:\Users\Adrian\Documents\SCourt\Basic
-Trainer\Ex_JDBC_HSQL\data\server.properties]
[Server@1d58aae]: Initiating startup sequence...
[Server@1d58aae]: Server socket opened successfully in 12 ms.
[Server@1d58aae]: Database [index=0, id=0, db=file:test, alias=] opened successfu
lly in 227 ms.
[Server@1d58aae]: Startup sequence completed in 262 ms.
[Server@1d58aae]: 2008-07-17 11:42:10.821 HSQLDB server 1.8.0 is online
[Server@1d58aae]: To close normally, connect and execute SHUTDOWN SQL
[Server@1d58aae]: From command line, use [Ctrl]+[C] to abort abruptly
```

Another window with a black screen will appear. Minimize this window (do not close it) to keep the demo database running in the background.

9. Creating the Composite Data Source

1. Right click on the “workspace” folder and select “Add” followed by “DataSource”.
2. Select “Composite” in the “DataSource Wizard” and click “Next”.

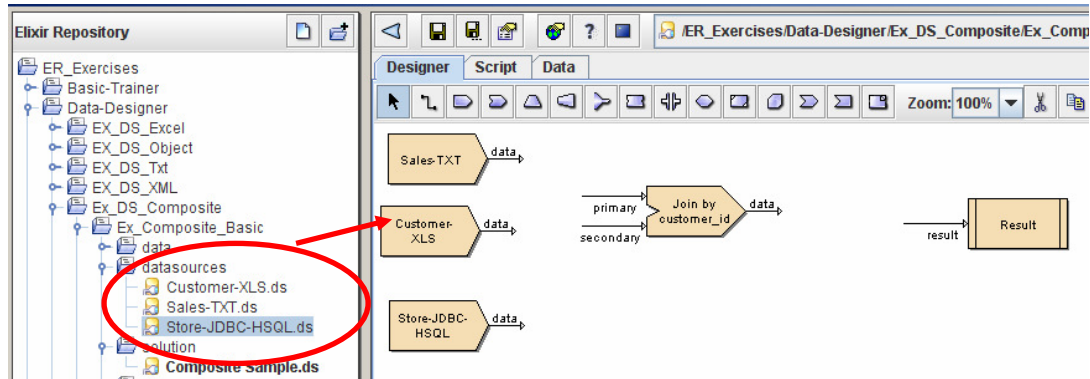


3. Input “Composite-Basic” in the “Name” field. Click “Finish” to proceed.

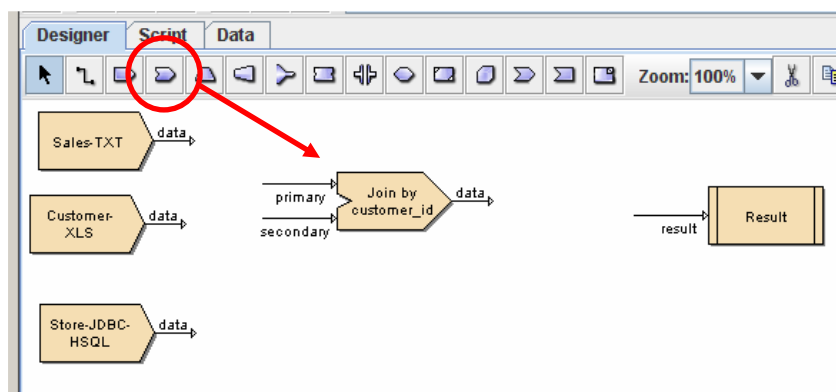


4. Expand the “datasources” folder, drag and drop the following onto the canvas area:

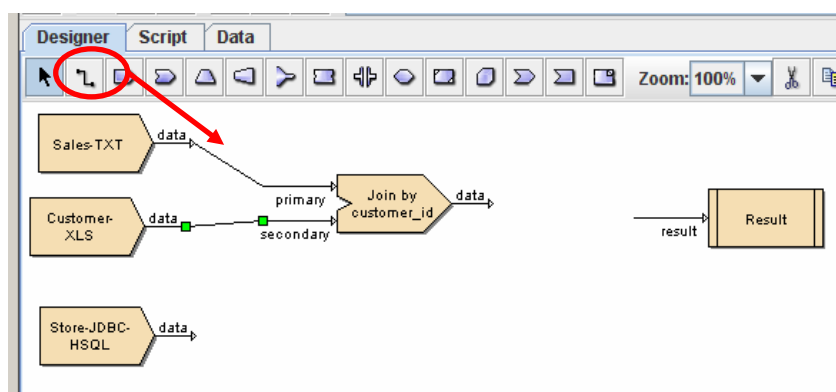
- i) Sales-TXT.ds
- ii) Customer-XLS.ds
- iii) Store-JDBC-HSQL.ds



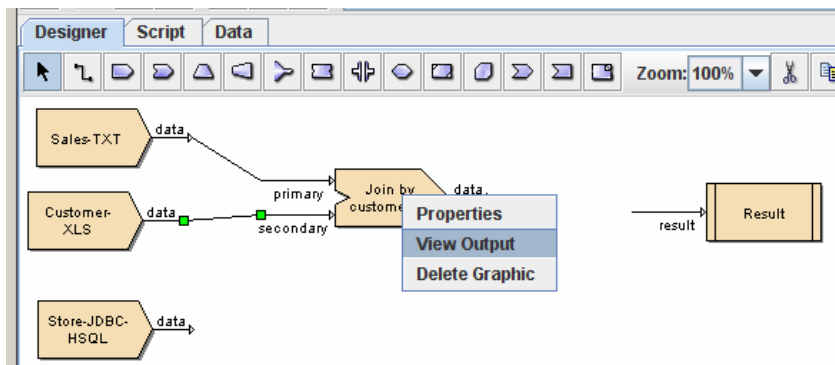
5. Click on the “Join” processor and click on the area in front of “Customer-XLS.ds” and “Sales-TXT.ds” to place the “Join” processor.



6. Click on the process flow connectors and draw two connections from each data source to the “Join” processor.



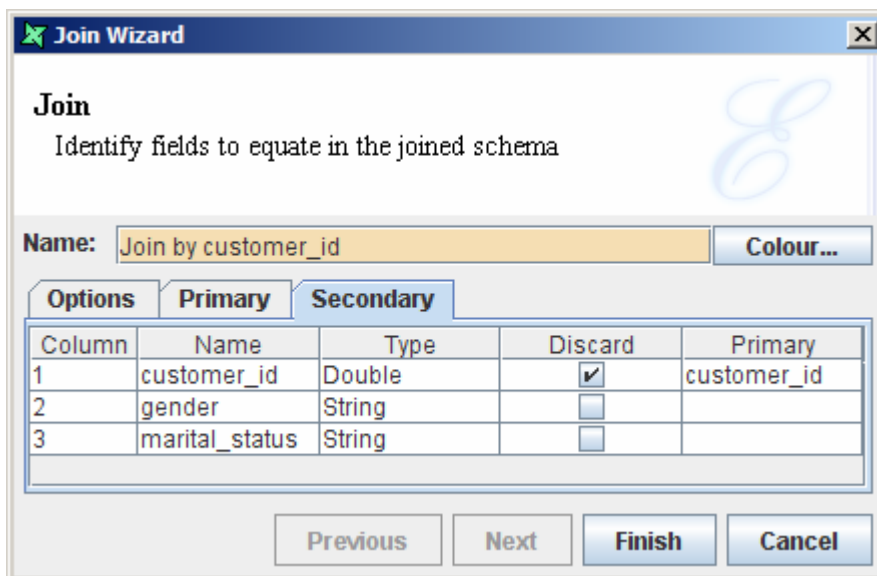
7. Right click on the “Join” processor and select “Properties”.



8. Input “Join by customer_id” and click on the “Secondary” tab. In the Secondary tab go to the column “customer_id” and check “Discard” and select “customer_id” from the “Primary” drop down menu.

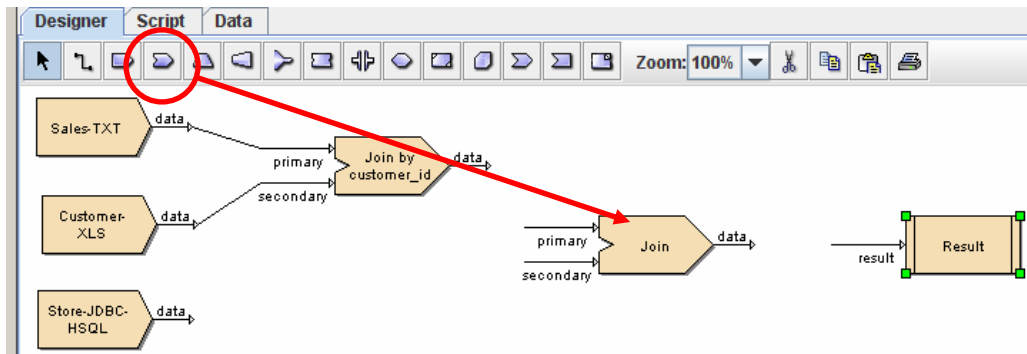
This performs two actions:

- i) Removes one “customer_id” column as there are currently two.
- ii) Defines that data from “Sales-TXT.ds” and “Customer-XLS.ds” are to be joined based on the “customer_id” relationship.

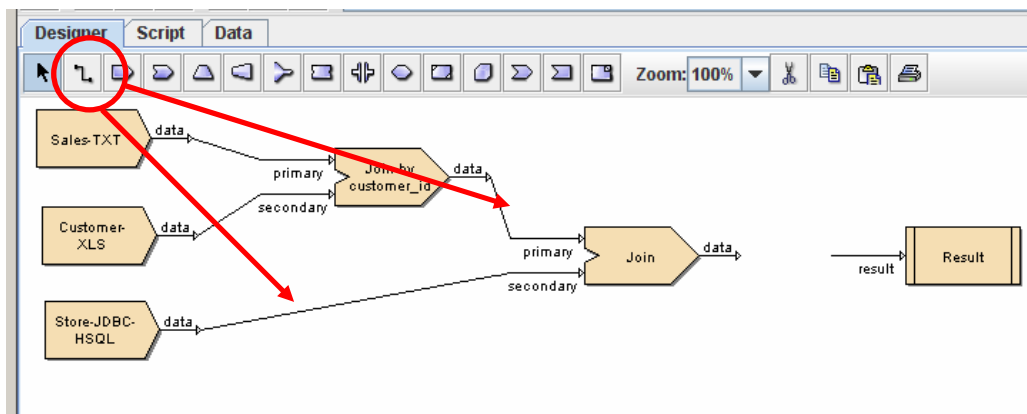


Click on “Finish” when done. Right click on “Join by customer_id” and select “View Output” to see the results.

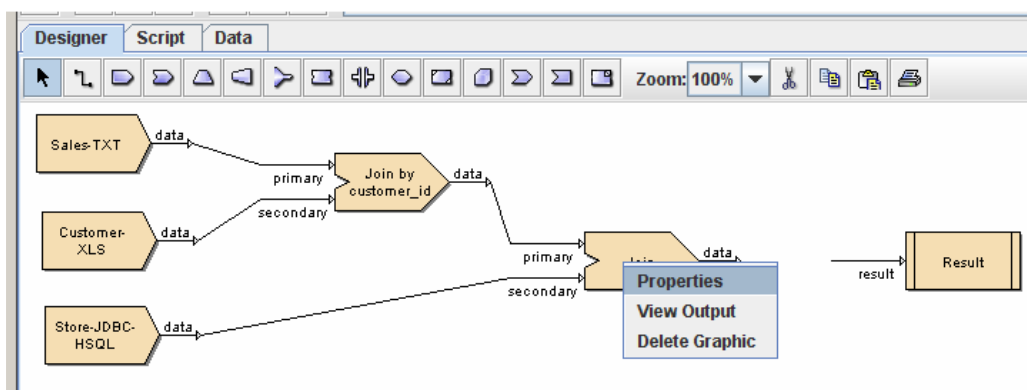
9. Click on the “Join” processor and click to add a second “Join” processor to the designer canvas.



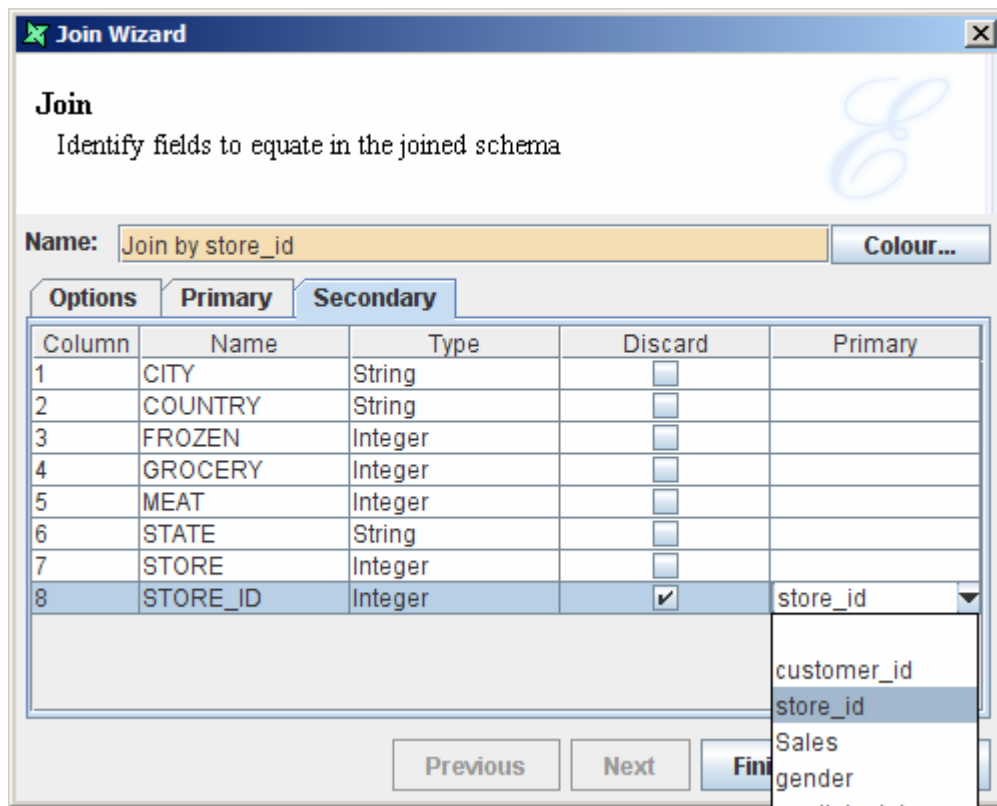
10. Click on the “Connector” and draw two connections; one from “Join by customer_id” to be joined to the primary input and the other from “Store-JDBC-HSQL.ds” to the secondary input of the “Join” processor.



11. Right click on the second “Join” processor and select “Properties”.

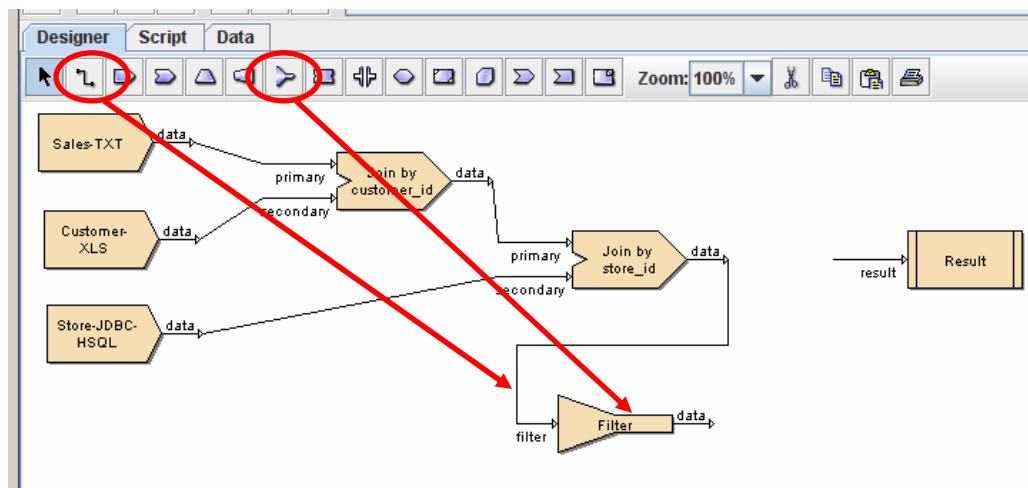


12. Input “Join by store_id” for the Name field and go to the “Secondary” tab. In the secondary tab look for the column “STORE_ID”. Check the “Discard” option and select “store_id” from the “Primary” drop down menu.

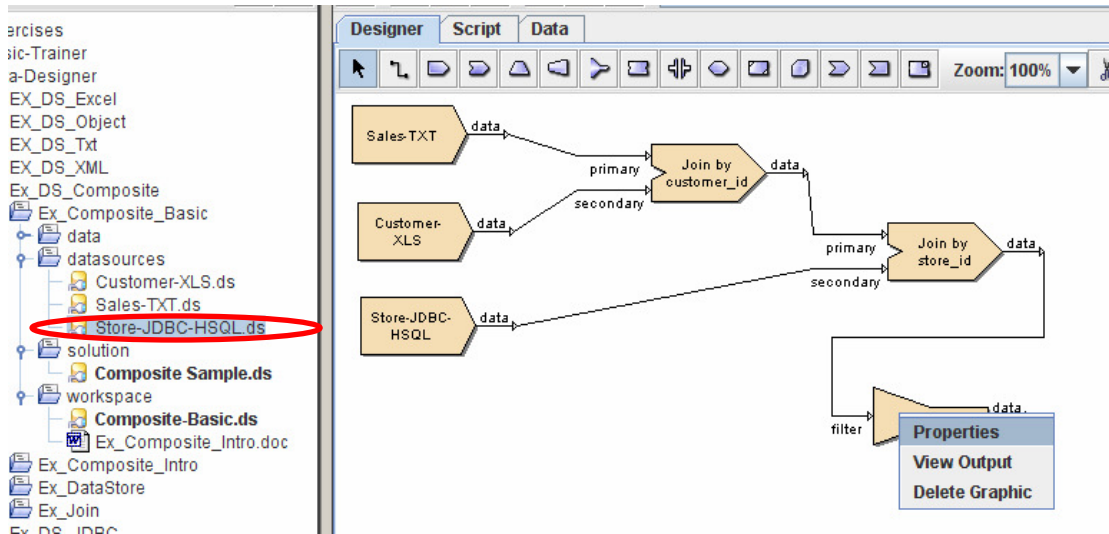


Again, one “STORE_ID” column will be removed after the join as there are two and data from both data sources will be joined based on having matching “store_id” values. Click on “Finish” when done. Right click on “Join by store_id” and select “View Output” to see the results.

13. Click on the “Filter” processor and click to add a “Filter” after “Join by store_id”. Click on the “Connector” to draw a connecting line linking the “Join” to the “Filter” processor.



14. Right click on “Store-JDBC-HSQL.ds” and select “Copy” to copy the URL path of the data source. Right click on the “Filter” processor and select “Properties”.



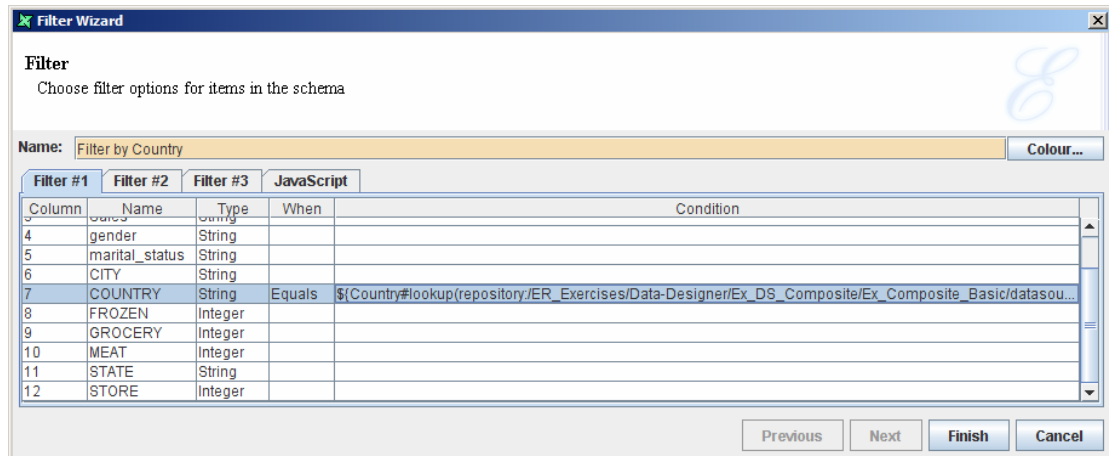
15. Input “Filter by Country” for the “Name” Field. Locate the row called “COUNTRY”. Select “Equals” from the “When” column and input the following under “Condition” replacing the bold text with your own URL path of the data source:

```

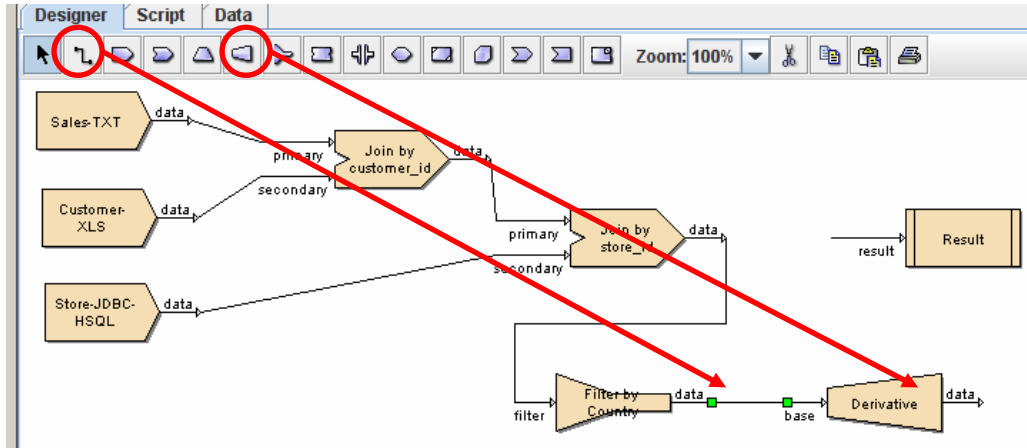
#{Country#lookup(repository:/ER_Exercises/Data-Designer/Ex_DS_Composite/Ex_Composite_Basic/datasources/Store-JDBC-HSQL.ds,COUNTRY)#}

```

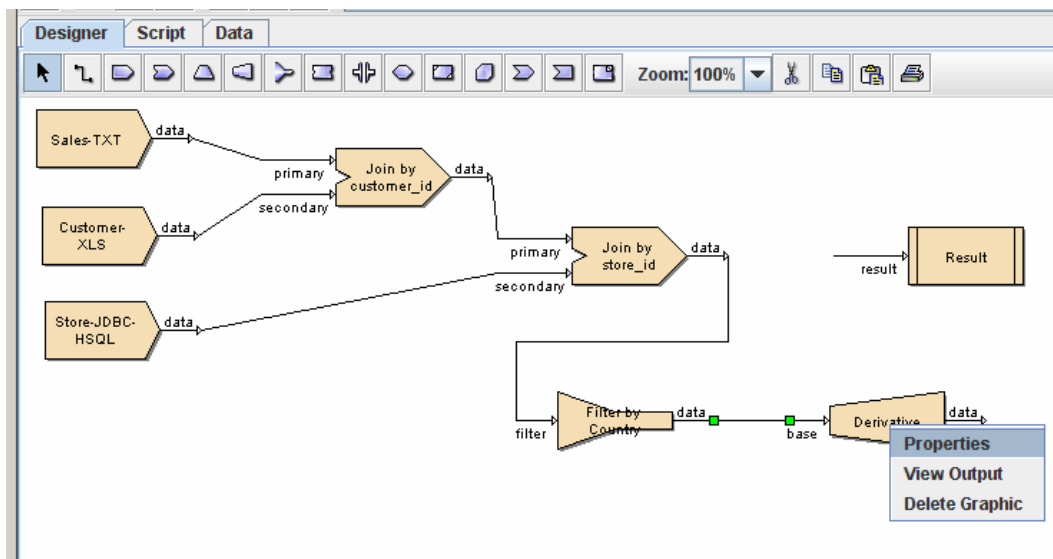
The above implements a parameter which references the “COUNTRY” column in the “Store-JDBC-HSQL.ds” data source and displays the values as a drop down menu. Click on “Finish” when done.



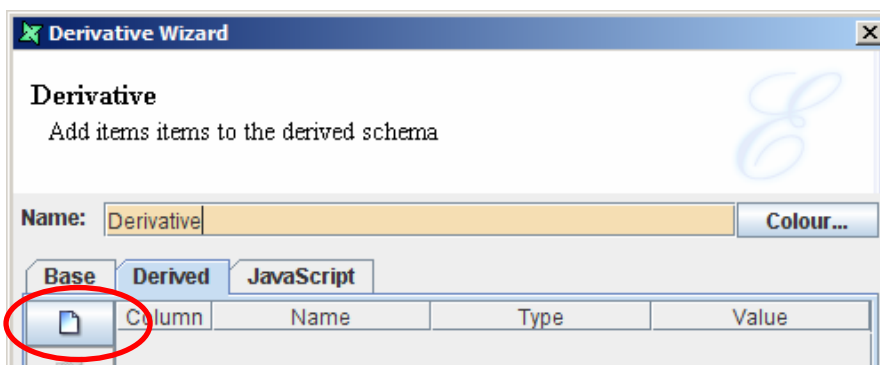
16. Click on “Derivative” and place a “Derivative” processor in front of the “Filter” processor. Click on the “Connector” and draw a connection from the “Filter” to the “Derivative” processor. The “Derivative” processor will use to create a new column called “meat_grams” whereby values from the “MEAT” column will be multiplied by 1000 to derive its weight in grams and written in “meat_grams” column.



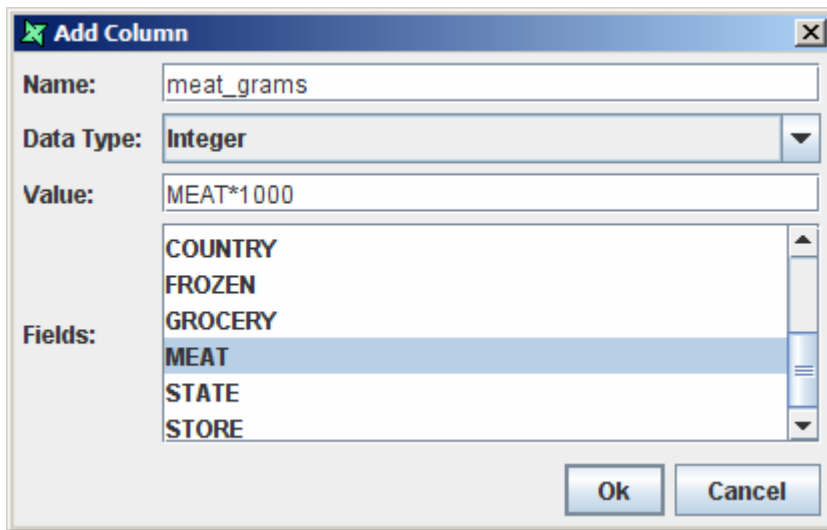
17. Right click on the “Derivative” processor and select “Properties”.



18. Click on the “Derived” tab in the “Derivative Wizard” and click on the “Add” button.

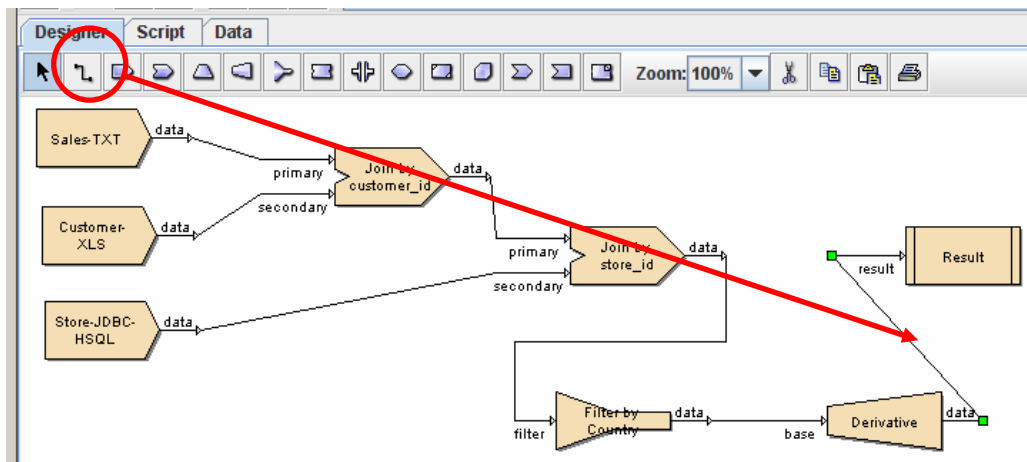


19. In the “Add Column” dialog box enter the following as shown in the example below:



Click “Ok” then “Finish” when done.

20. Click on “Connector” to draw a process flow from the “Derivative” to the “Result” processor.



Right click on “Result” and select “View” to see the overall result of the entire process flow.