Using SAP HANA Variables and Parameters in SAP BusinessObjects BI4.0

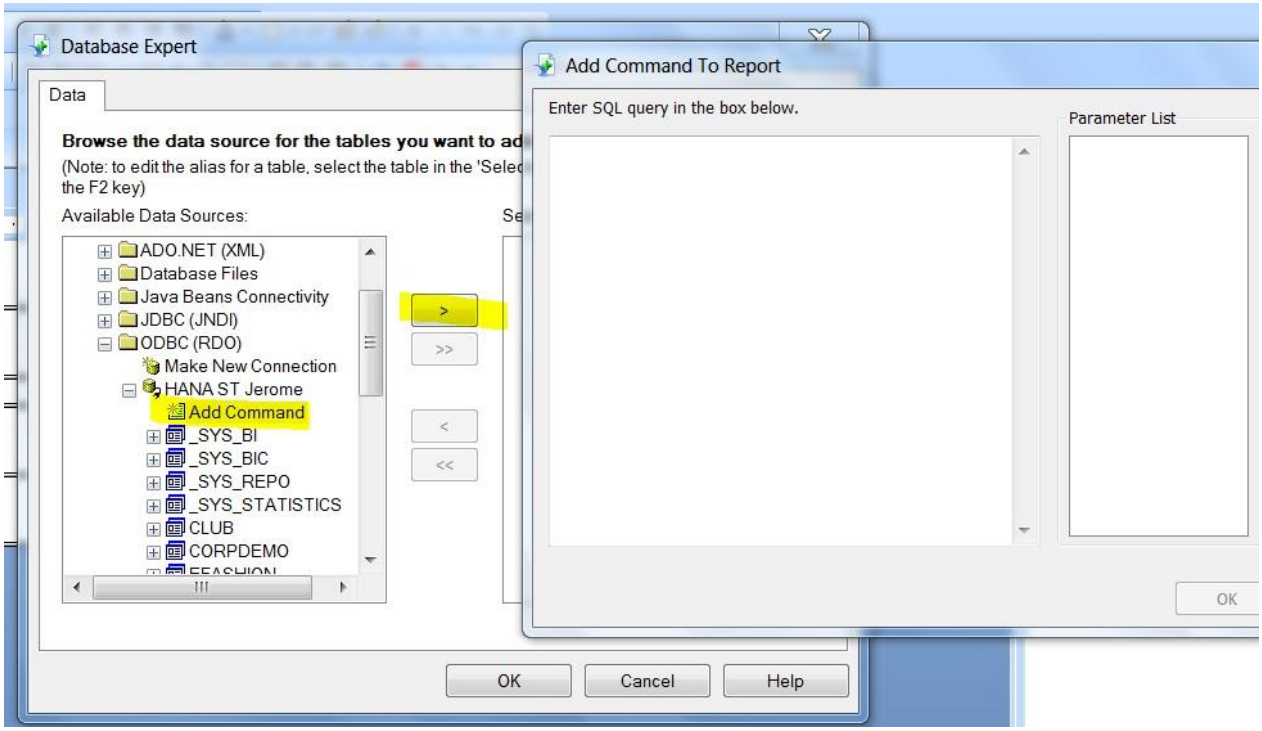
9. Variables and parameters in Crystal Reports 2011

With Crystal Reports 2011 FP3 it is possible to connect to HANA information models and make use of variables.

We will create a new connection to a HANA system then write an SQL command which will retrieve data from the information model with the parameters we pass to it.

Creating the connection to HANA

Create a new report and in the database expert create a new connection to your HANA system. In our example we connect via the HANA ODBC driver. When connected to HANA just add a new Command



Defining the correct SQL command

In the command window we have to enter the correct SQL to query the HANA model by using the variables and parameters defined in it.

As we said above, the HANA engine expects an SQL statement in this format:

```
SELECT […]
FROM <viewname>  ('PLACEHOLDER' = ('$$<parameter name>$$',<parameter value>)
WHERE <attribute name>=<filter value>
```

And in our example

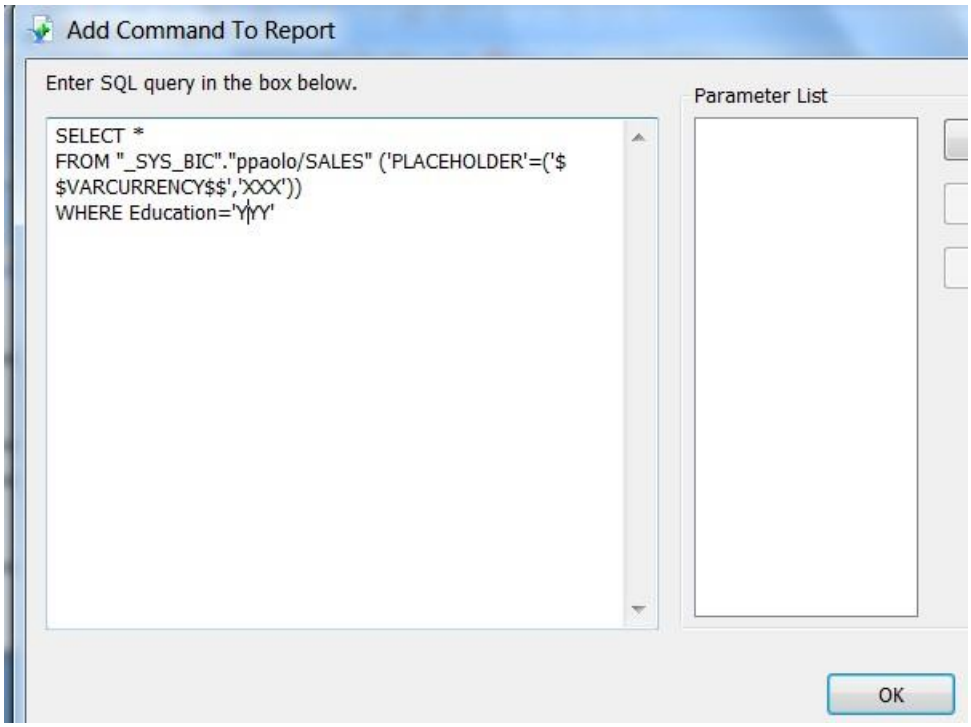
```
SELECT […]
FROM SALES  ('PLACEHOLDER' = ('$$VARCURRENCY$$','<a currency identifier>')
WHERE Education='<an education level>'
```

We will make use of the Crystal Reports parameters functionality to fill in the correct values.

We will use the following statement in the command SQL:

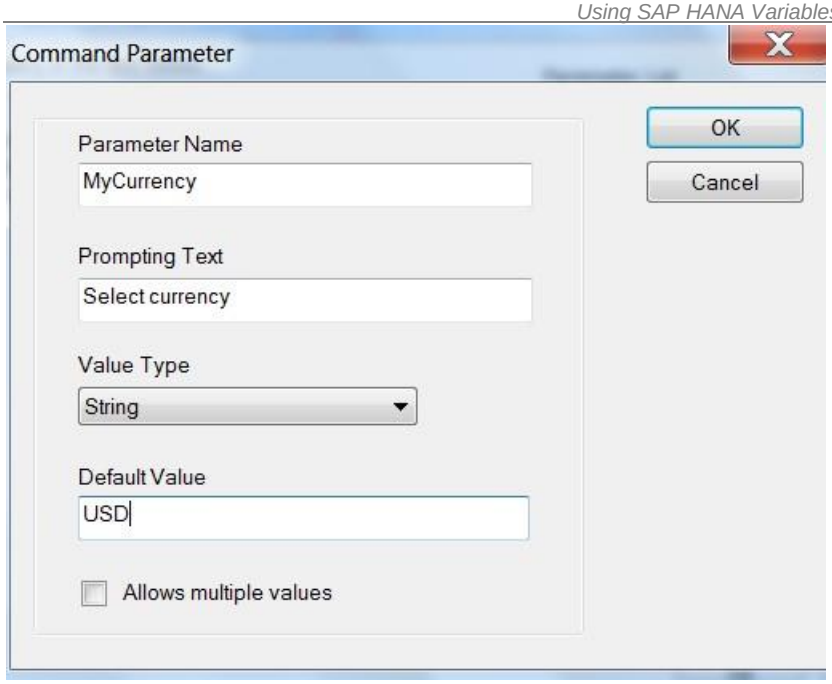
SELECT *

FROM "_SYS_BIC"."<MyPackage>/SALES" ('PLACEHOLDER'=('$$VARCURRENCY$$','XXX')) WHERE Education='YYY'

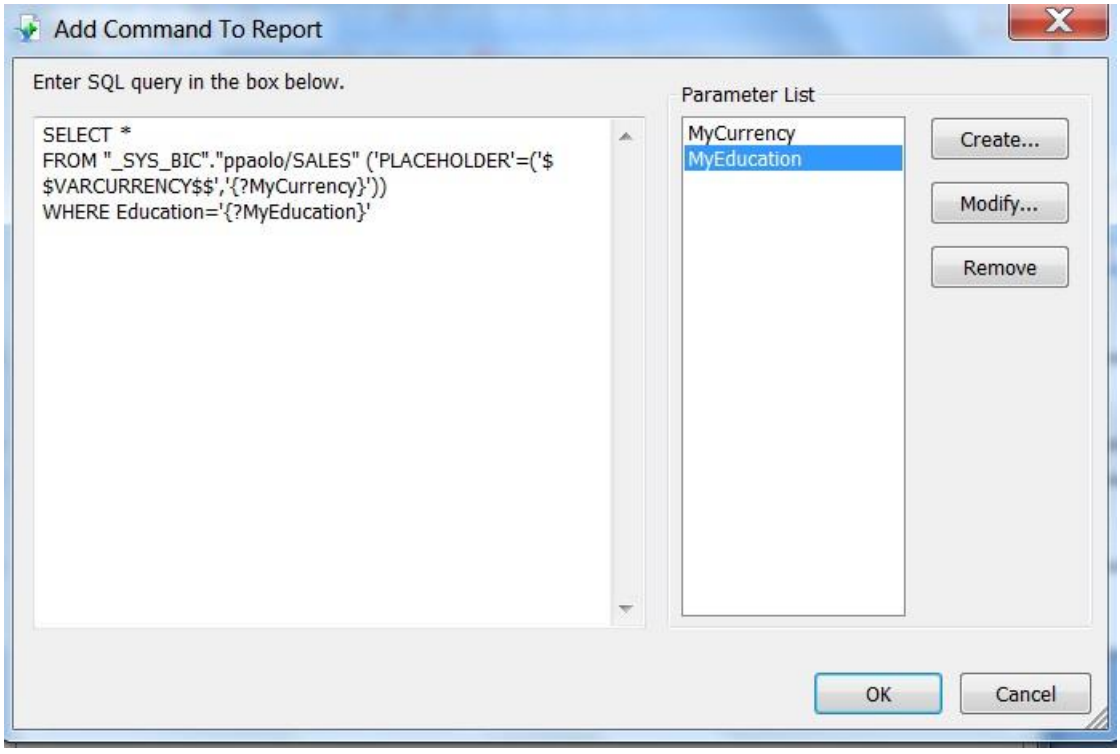


Then we define two parameters: MyCurrency, of type string and with default value USD

MyEducation, of type string and with default value “Graduate Degree”. Those will substitute the XXX and YYY strings in the above command.

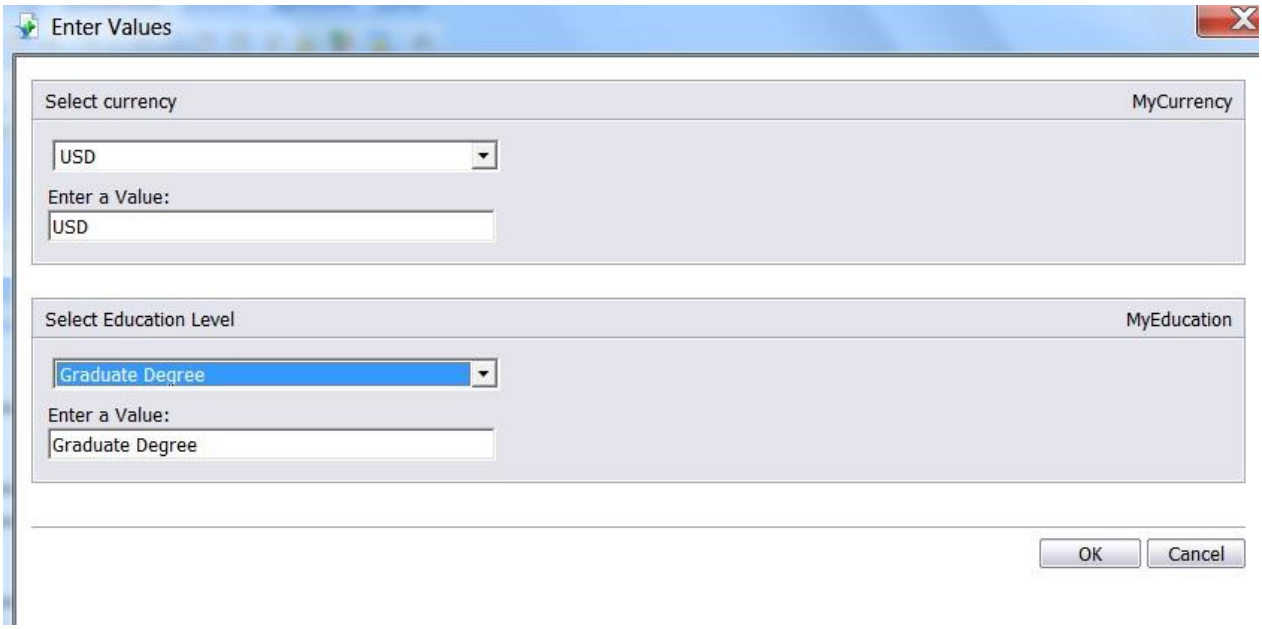


The final SQL will look as follows:



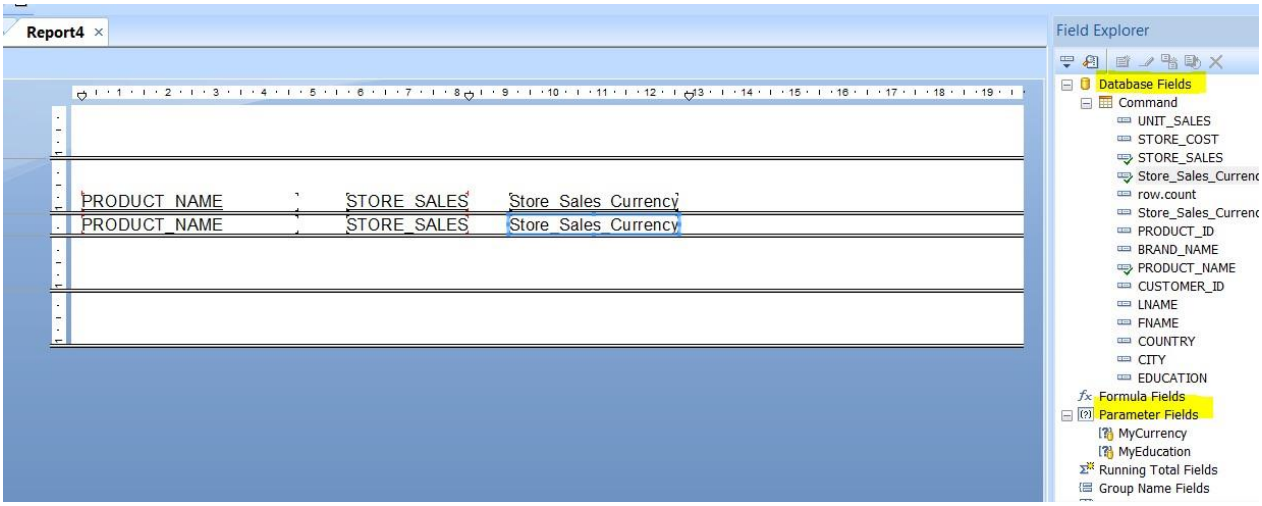
Make sure that the two parameters are correctly wrapped between single quotes as they are strings.

Now click OK to submit the first query which will build the field list. Answer the parameters with their default value



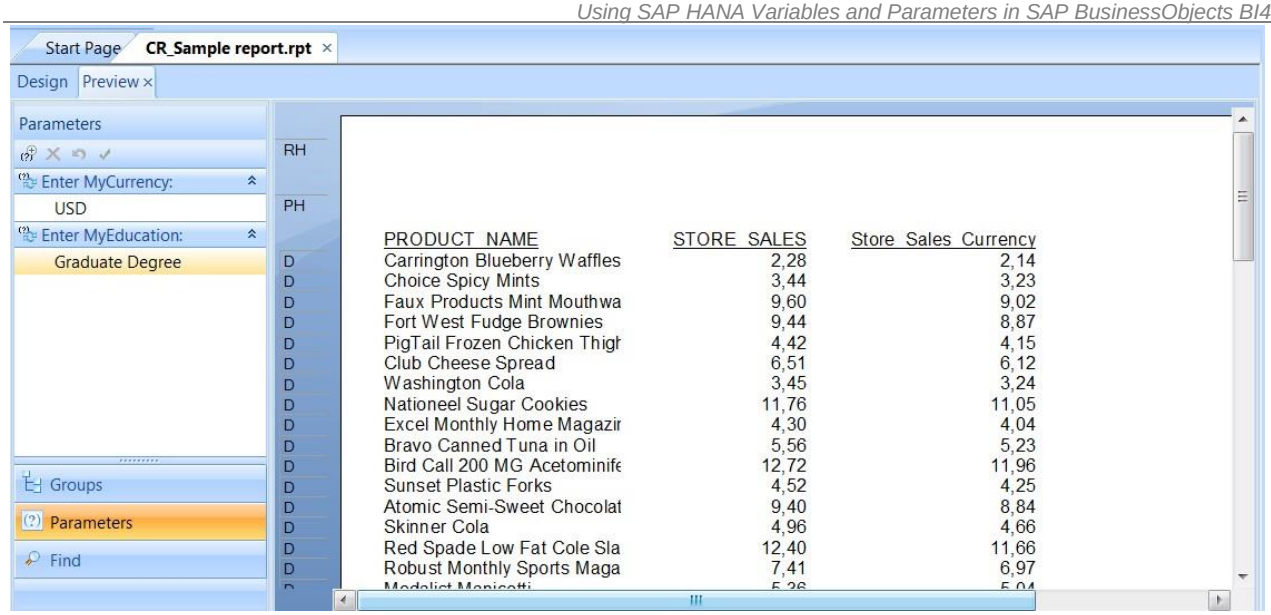
Build the report

If the SQL generated was correct you are now in the report design page and you can see the list of available fields and the two parameters we have added.



Add a few fields to the report to see it working

Now choose to preview the data and check that information is getting into the report.



Modifying the parameters

Using the Parameters tab you can now change the values for the currency parameter and the Education attribute filter.

Choose a new value then apply the changes and the report will show the newly retrieved data.

For the time being you have to manually enter the parameter values, this is a complex task. We will add now the list of values which can help filling in the information.

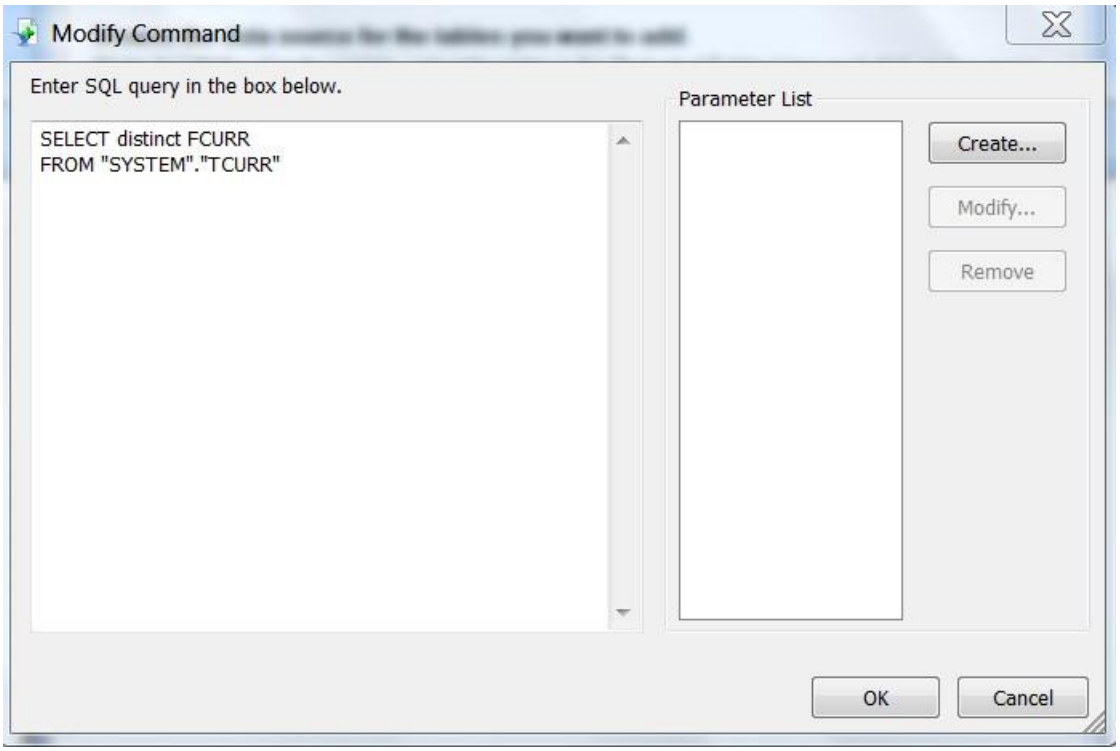
Adding the list of values for the parameters

We will add the list of values as new SQL commands to the report.

To do so, go back to the database expert and add a new command which we will use for the Curreny list of values.

In the command SQL window select all available currency. We will select only the distinct values with the syntax

SELECT distinct FCURR from “SYSTEM”.”TCURR”

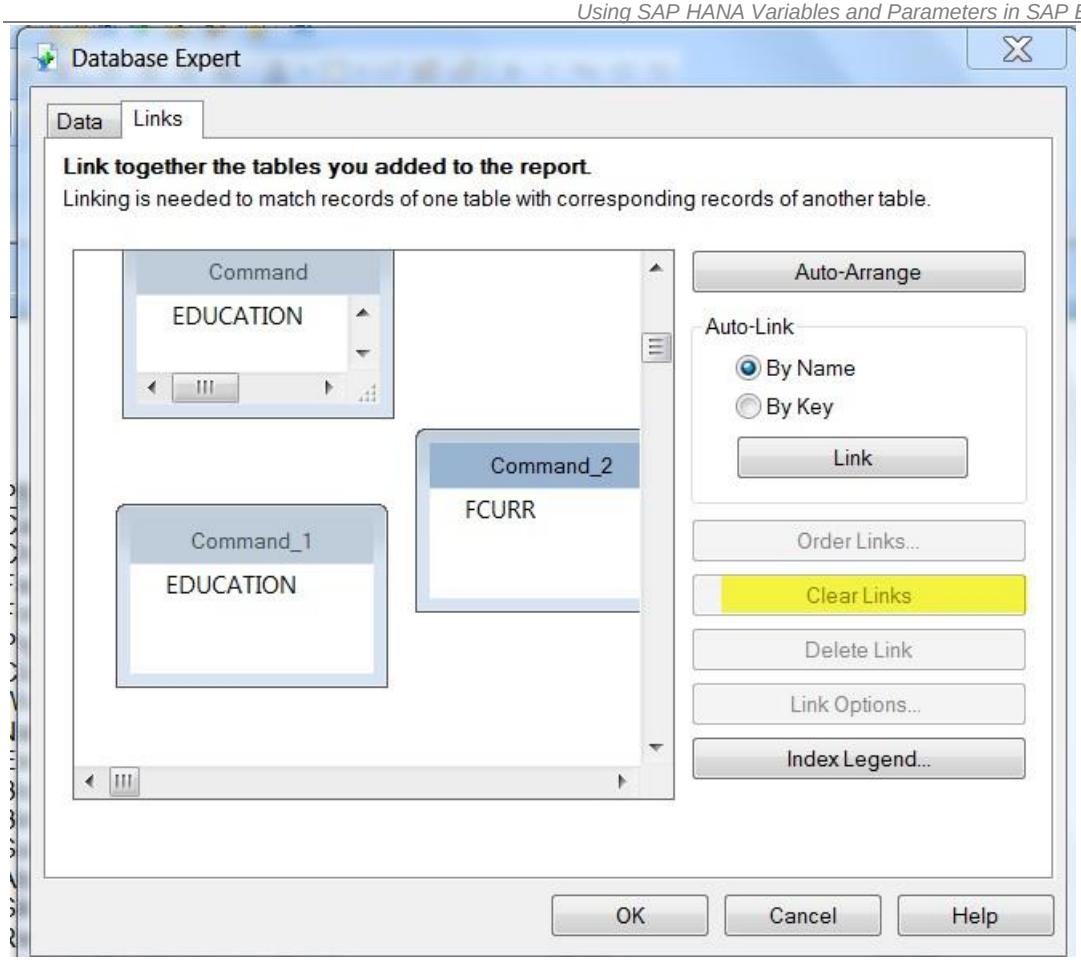


Click OK and add another command for the education level from the CUSTOMERS attribute view with a syntax like:

SELECT distinct education

FROM "_SYS_BIC"."<myPackage>/CUSTOMERS"

Make sure that there are no links between the sources of the report



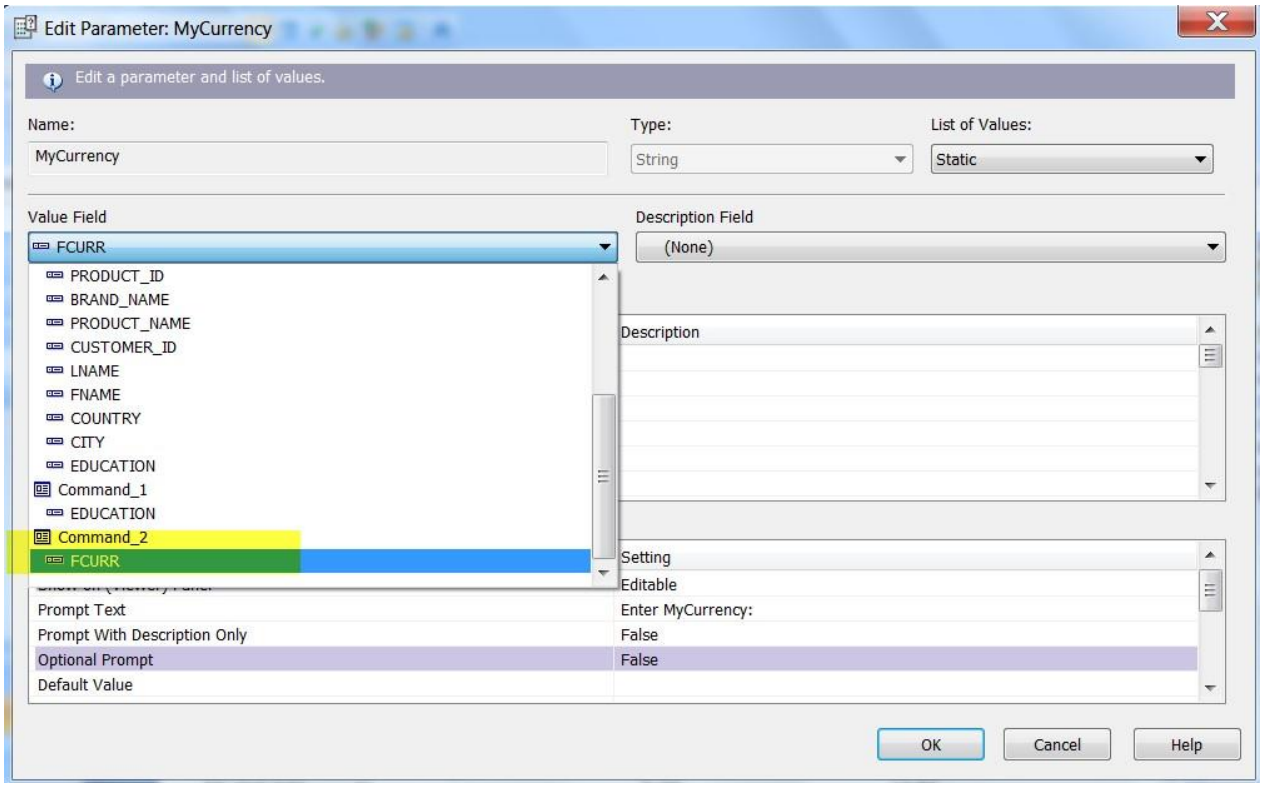
Now, back in the report, edit the two parameters and associate to the MyCurrency parameter the Command value field FCURR and to the MyEducation parameter the command value field Education.

You can define static or dynamic parameters.

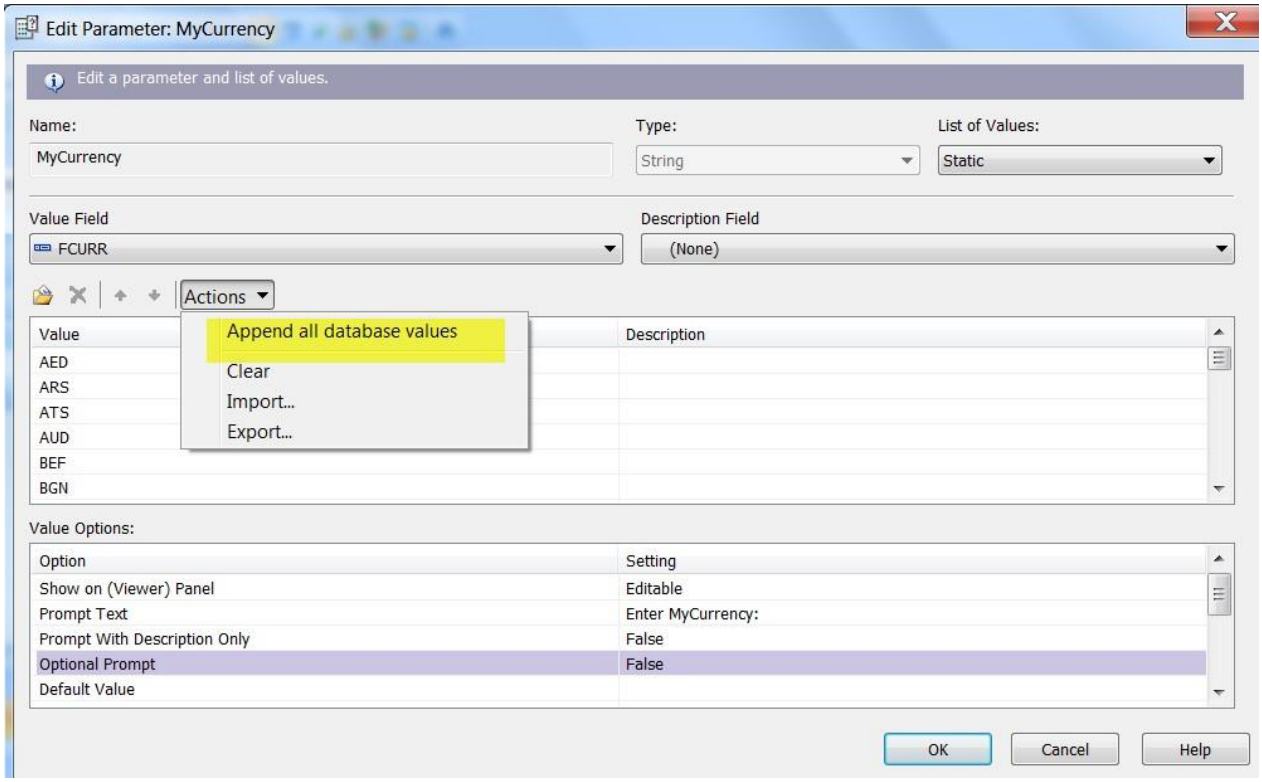
Static parameters will open quickly but the LOV will not be refreshed at each utilisation.

Dynamic parameters will contain the latest list of values as found in the database but will require a refresh each time they are opened, with an impact on performance.

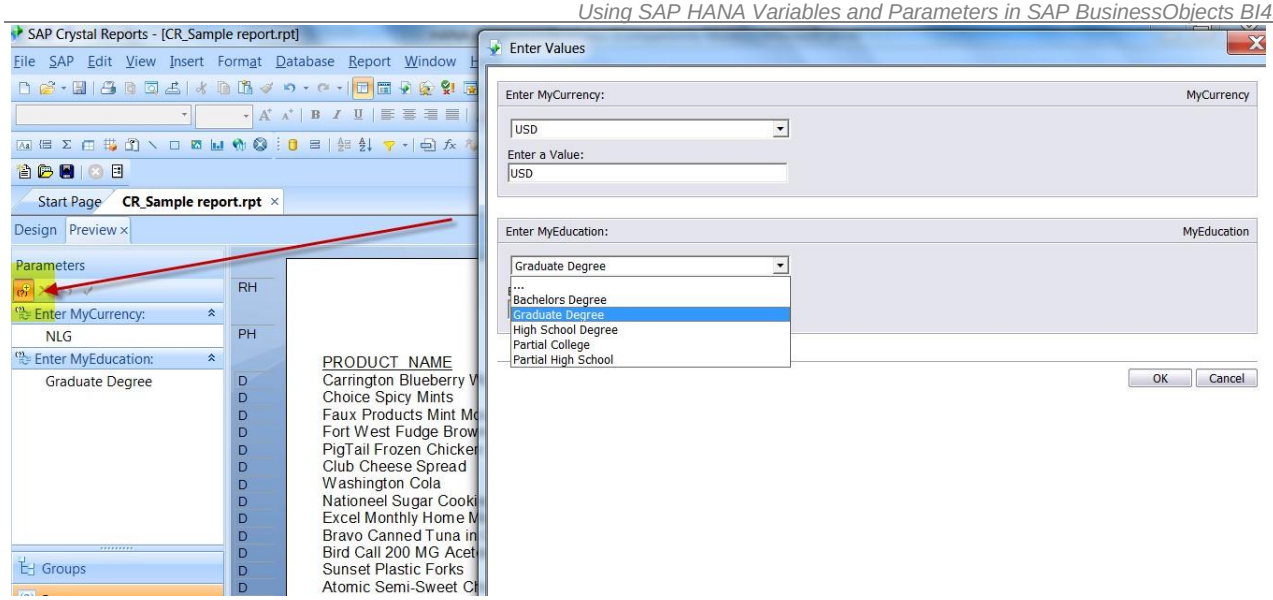
In the example below, MyCurrency is defined as a static list of values



And the (static) values are added to the list with the “Append all database values” command.



After doing the same operation for education it is possible to refresh the report with new values chosen from a list



After applying the new values, the report will refresh as requested.