# ESRBI Intermediate Report Writing Workshop

## Script

### Introduction (00:00 – 04:10)

Basic Report Writing is not a pre-requisite for this workshop. However, the functionality covered in this workshop has been picked as it should be a natural progression from what we have covered previously.

Unlike the previous workshop we will not be following the creation of a Dashboard from start to finish. Rather, we will look at an area of functionality, discuss how and where you might use it, and provide a demonstration. The examples we cover today will be basic, but we are looking to provide you with the skills and understanding of the functionality so you can go forward and use these in your own reports.

I am using the BI Administration URP and you will need this URP assigned to you if you wish to do anything that we cover. Please remember that the functionality covered here today can be applied to all subject areas and topics. We primarily use Workforce Information as this can be universally understood by most BI users.

We are starting by going to the Catalog and navigating to our personal folder. I am going to start by going back to the analysis I created in the last workshop: Headcount by Gender. For those who did not join us last time, or for those who want a recap, this is a basic analysis that provides headcount by gender, for all the Organisations in the VPD. We have also filtered to only include where the headcount is greater than one.

In the current view we have a view selector which allows you to switch between the pivot and able views we created.

Importing formatting (02:18)

I am now going to import formatting from another analysis. To make this clear I will use just the table.

Navigate to the bar at the top of the screen and select ‘import formatting from another analysis’.

You can source a national analysis from the Catalog. You could also create your own analysis with just one column with your desired formatting and import from that.

Column Selectors (04:10 – 12:05)

A column selector is a drop-down list that contains pre-selected column values. A user can select columns and change the data that is displayed in the view of an analysis. You may recognise these as ‘group by options’. You will typically see these in the National Dashboards where they allow you to choose between specific Organisation levels.

Example:

1. To start we need to add in columns. For this example I will and in Org L1 twice.
2. We can now see the columns have been added in to the table analysis
3. Go to add a new view, other views and then column selector
4. Select the columns you wish to turn into a column selector drop down
5. Type in ‘group by; and ‘and’ – users may recognise these now
6. By selecting the column, we can now add in the additional fields from the subject area folder

We also have blank or null options in the column selectors. To do this, add in an extra field:

1. Edit the formula of the field you wish to make a null value
2. Enable Custom Headings, and remove the heading.
3. In the formula, write ‘NULL’.

At the top of the banner, untick ‘Automatically refresh when a new column is selected’.

You may wish to null a column in other circumstances, and what has been demonstrated here can be applied to those scenarios.

After creating a new view (column selectors), you will need to add the view to the compound layout and move it to the top of the view.

The values you set for the column selector in the compound layout will be the default values as it appears when you place it in a Dashboard.

Navigating to the Criteria view, shows how the column selectors will appear here. We will now save the analysis with a new name.

In the past we have been asked how users would edit column selectors. This can be done to the results tab and amending in the column selector view.

If you are just creating a basic analysis, you can just add your desired columns into the analysis. However if you are creating a Dashboard and included your analysis with the column selectors, those with access to the dashboard would be able to change the columns to what is available in the selector. You would use the column selector in conjunction with a Dashboard. If you are editing a national one you will now know how.

Aggregation (12:05 – 26:06)

We are now going to look at aggregation and basic formulas. For that we will need to create a new analysis.

To have a look at aggregation it is best that we start with some definitions.

Dimension is a field which might be used to group or describe data. Examples of such fields in ESR BI are Employee Names & Numbers

Measures (also known as Facts) are fields that return a numerical value (in most cases) of those records that are aggregated. This may be done by counting, summing, or finding an average.

We can aggregate a dimension or facts. For example; instead of the Employee Number (the dimension) field returning a list of all employee numbers as at an effective date, when aggregated using a Count Distinct function, it returns just a count of all employees for the organisation.

We have used aggregation against the dimension to return a measure.

One of the main benefits of using Aggregation in ESR BI is that it helps to speed up the time taken to run calculations and deliver the results. A number of fields in ESR BI are already aggregated i.e. designed to return results of different calculations such as

* Employee or Assignment Count Distinct
* Headcount (Count of Primary Assignments)
* Starters and Leavers Headcounts (Distinct Count of Employee Numbers with Latest Start Date or Actual Termination Date within a given period).

The measures are relevant to the subject area you are using and employee headcount will be in most.

For the next analysis we are going to look at how we can create a basic case statement, and as a part of this show how we create the aggregated measures. We are going to look at the starter and leaver headcounts.

To get started we will input the Measure (or Fact) – starters headcount, and in a date filter and look at the results. The results show us the number of starters in the period. It returns a number. It is important to remember that this measure is an aggregation. The aggregation is a count of employee numbers which started during the defined period.

We can create this ourselves by adding in a new column and amending the formula. For this example I have changed the column heading so we can easily see which is the newly created column.

A case statement goes through conditions and returns a value when the first condition is met.  
  
CASE WHEN

"Employment Attributes"."Employee Latest Start Date"

BETWEEN

timestamp '2018-01-01 00:00:00' AND timestamp '2018-03-31 00:00:00'

THEN

"Employee Attributes"."Employee Number"

END

This formula currently states: when the employees latest start date is between 1st January 2018 and 31st March 2018, return the employee number. Saving this formula as it is would return the employee numbers only.

To count the number of employees whose start date was in this period, we need to add a count distinct to the formula.

COUNT DISTINCT(

CASE WHEN

"Employment Attributes"."Employee Latest Start Date"

BETWEEN

timestamp '2018-01-01 00:00:00' AND timestamp '2018-03-31 00:00:00'

THEN

"Employee Attributes"."Employee Number"

END)

This will now count the number of employee numbers whose latest start date was in the defined period.

Navigating the results tab demonstrates that the measure, and our newly created column, returns the same value.

A case statement is similar to an IF statement in Excel – if it meets this criteria (employee latest start date within a defined period), then return the employee number.

We can also add ‘else’ to the case statement, so if the criteria is not met, do something else. If no conditions are met, nulls will be returned.

We can also do this for leavers headcount. Where we previously used employee latest start date we will now use actual termination date.

In the next example, we will write the case statement as before but this time, put the date format in incorrectly to show what will happen if the formula is written incorrectly. Everything else here is correct.

Incorrectly:

COUNT DISTINCT(

CASE WHEN

"End Employment Details"."Actual Termination Date"

BETWEEN

timestamp '01-01-2018 00:00:00' AND timestamp ’31-03-2018 00:00:00'

THEN

"Employee Attributes"."Employee Number"

END)

In this example, we have written the date format incorrectly.

Correctly:

COUNT DISTINCT(

CASE WHEN

"End Employment Details"."Actual Termination Date"

BETWEEN

timestamp '2018-01-01 00:00:00' AND timestamp '2018-03-31 00:00:00'

THEN

"Employee Attributes"."Employee Number"

END)

Some of the BI error messages will indicate where you have gone wrong. However, our Troubleshooting Guide, available on the ESR Hub, has a list of frequent errors you may experience with SQL and how to resolve them.

For the most part, you will not need to create aggregations yourself (do look in the facts folder).

What we have just done is two things. First, demonstrate how we aggregate. And secondly, provide you with an example of basic formula in the form of a case statement.

You may wish to create your own Case Statements in your local analyses if you wish to implement logic based on your own local criteria.

If you are uncertain about writing formulas, there are a multitude of online resources available which format logical SQL into a readable format such as Notepad++.

The quick reference guide also provides formulas to be used in BI

This analysis can now be saved.

Combining Subject Areas (26:06 – 49:09)

Add/Remove Subject Areas (26:06)

We have been asked by users to cover combining subject areas. We can do this in two ways, by adding a subject area, or by creating a union using set operations. We will look at both and why we might use each one.

When using the Add/Remove Subject Area functionality, it is important to remember that not all subject areas can be joined together. Generally speaking, if subject areas are based on the same time dimension (e.g. “Time”.”Date”) then it may be possible to join them. An example could be the subject areas Workforce Profile and Person EIT Details – which is what we will do in this example. But payroll and workforce cannot be joined together as payroll is based on a payroll or accounting period. A number of subject areas are ‘Real-Time’ and query ESR directly. These subject areas cannot be joined with any other subject areas.

First we will create an analysis, by adding two subject areas together. Start by creating an analysis using the Workforce profile subject area and then navigate to the green plus icon next to ‘Subject Areas’ and select Person EIT Details.

Example:

1. Add in Employee Number and Employee Latest Start Date from the Workforce Profile.
2. Add in Permission to Check DBS Status, DBS Website Check Date, and DBS Website Match from the Person EIT Details
3. Filter to return results as of the current date, where there is permission to check the DBS status, and the website check date is not null.

The results of the analysis are returned successfully. The analysis can now be saved.

The subject areas are broken down in to a set of logical folders based on business areas and you may wish to combine them when you want to use different columns from separate subject areas in the same analysis which is what we have done here.

You may ask why are we using workforce profile for some fields, when the fields were available in the Person EIT folder? (for example employee name and number) – starting an analysis with the workforce profile subject area is good practice. For some columns, the navigation is not the same between subject area - for example (organisation in person EIT it is Employee Organisation and in Workforce it is just organisation) so if you wish to combine your own analysis with an existing National prompt, a lot of our prompts are built using the Workforce Profile subject area. If the columns location do not match in the analysis and prompt unfortunately they will not be able to be used together.

A table of which subject areas can be used together can be found in the Report Writers Guide available on the hub.

Union/Set Operations (39:23)

The second way in which we can join subject areas together is in a union using set operations.

In this example we will look at creating an analysis reporting on multiple Professional Registration bodies. To start, we are creating an analysis using the Person EIT Details.

In the first example we are creating an analysis with employee number, and the General Medical Council Registration Membership body, filtering to only return where there are employees for this registration body, and running the analysis. The purpose of this is to demonstrate how the analyses, and results, are returned.

Next, in the second example we are creating an analysis using two Professional Registration bodies, from two separate folders (GMC and NMC). This is not something we would encourage, and the folders explicitly state not to take items from different folders. It has the ability to impact performance. I am doing it here as I am demonstrating what the analysis will look like. As before, we have filtered to only return where there are employees belonging to this body. The results show the employee number, and one column identifying if the registration body is General Medical Council, and another column identifying where the employee is a member of the Nursing and Midwifery Council.

To create a union, in the Criteria tab remove the column and filter for Nursing and Midwifery Council. Navigate to the Selected Column banner and click the green plus icon on the right hand side. Select the same subject area (Person EIT Details).

In the top line of the union we can see the analysis already created, and in the second row, we can see empty boxes, indicating where columns should be placed. In this example, we will place Employee Number in the first column (as in the first row), but in the Registration Membership Body, select the column from the Nursing and Midwifery Council folder (in the first line of the union, this is the General Medical Council).

The second, and any subsequent rows of the union, must have the same layout. Similarly each line of the union must have the same filters (in this example, changed so that the correct Registration and Membership Body folder is referenced in the filter).

Running the analysis now shows that we only have two columns, employee number and registration body, with either General Medical Council or Nursing and Midwifery Council returned. Where previously GMC and NMC were returned in separate columns, they have now been combined as one.

In the next example, the same steps are repeated but for the Social Work England Registration body. Again, the results show that NMC, GMC and SWE have been combined into one column.

We are now going to look at how to add columns to the existing union. If you copy a National Analysis which contains a union and you wish to add more columns, to ensure that the column is added to every line of the union as done here. In this example we have added the column Employee Latest Start Date. It has been added to every row of the union.

If you are adding additional columns where the columns are not consistent across all rows of the analysis – for example the Professional Registration Attributes, you will need to NULL the field in each row of the union where it does not apply. This is the same as what we covered earlier where we remove the column name and write NULL in the formula.

To clarify:

* The data type and the number of columns in the union must be the same for each row.
* You can use the same or a different subject area of each row
* You cannot use hierarchical columns or selection steps.
* You may wish to use a union where subject areas cannot be combined for example workforce profile and payroll

Recapping the differences:

* Combining columns using a Union operation produces different results than adding columns from related subject areas as the analysis will now show a single newly combined column
* When you add columns from related subject areas to an analysis, the results show each added column individually.

Alerting (49:09 – 01:05:42)

One question and topic that comes up often is scheduling and Alerting and we have received many requests to go through this.

There should be no need to have to schedule reports with BI. Unlike DISCO, BI reports should load within minutes if not seconds. Before we implement analyses or enhancements, performance testing is taken into consideration. If there is an absolute need to schedule, it is available via BI publisher where users can set up reports to be ready for a certain time. We have more information on using BI Publisher in one of our guides available via the ESR HUB.

With this in mind we will look at Alerting.

Dependent on content and purpose you may want to set up alerts which are designed to be short, specific reports, only containing up to 75 rows which can be delivered via email.

A user has asked, “Is it possible to create an alert for supervisors to advise them of any sickness absence triggers which their team member may hit? For example: 4 episodes of absence in the last month. This is a really great question and perfect for alerting. With alerting we want to deliver specific information, and as I mentioned earlier, we are limited to 75 rows so this kind of alert would meet the criteria.

Unfortunately the environment that we are using does not have multiple absences for employees so I cannot deliver this specific alert. However we can create something similar with what we have available today. I am going to look to create an alert that would notify managers (particularly senior managers) where it has taken 7 days or more to enter an absence.

Creating the analysis (51:45)

To do this we need to create an analysis using the Absence subject area. We will add in the appropriate columns and filter to restrict to Sickness absences only, and where the time taken to enter is greater than or equal to 7 days.

We also need to define a date period. As the agent will run independently, we need to ensure that the date period is dynamic, meaning that we do not have to go in every time the analysis runs and redefine the date period.

Similarly to CURRENT\_DATE, where the analysis runs as of the current day, we can set this for a period of time using the ‘is between’ operator and using two SQL expressions.

Example:

Date

Is between

TIMESTAMPADD(SQL\_TSI\_YEAR, -2, CURRENT\_DATE)

and

CURRENT DATE

This means that the analysis will be filtered to absences between two years ago from todays date and todays date.

With the TIMESTAMPADD expression, there are many different intervals to be chosen from. A full list can be found in the ESRBI Quick Reference Guide.

‘-2’ refers to the number of intervals to take. In this example, -2, means go back two years. A positive integer would indicate going forward two years.

Finally CURRENT\_DATE, indicates to count from todays date.

This timer period is not appropriate for an Alert. However, to return appropriate data as this is a copy environment, we need to set the date filters back two years.

Running the analysis shows what the data will look like.

To make the analysis appropriate for an alert, we need to change the dynamic date formula. This should be set to one month rather than two years.

The analysis can now be saved and the agent can be created.

Navigate to new, and then Agent.

Creating the Agent (58:25)

Creating the Agent:

General – we do not need to make changes on this tab.

Schedule – here, we need to define the frequency. For this Alert, it is appropriate to be run once per month, as the analysis looks over the past month also. The start date and time needs to be defined.

Condition – we will create the condition from the analysis we have just created, where it returns when the row count is greater than 0.

Delivery content – set the subject, define the content, and decide whether to deliver as an attachment (over email).

Recipients – Users will may wish to remove themselves from the recipients. Publishing the agent for subscription will allow users to subscribe. The agent we have created is aimed towards managers so you would want make it available for subscription to allow them to subscribe.

The Agent will inherit the permissions of the folder it is placed in, and therefore the application roles. Ensure to remove any applicant roles if not appropriate.

VPD will be here in your BI. It cannot be removed as it is instructing to send the alert to just your VPD.

In the example I have unticked available for subscription due to using a copy environment.

Destination – devices refers to sending it over email.

Actions – no further actions are required for our Alert, however you can set actions that are available to be executed – if the alert has been set up based on certain conditions then an action can be executed based on the same condition.

The agent is now ready to be saved.

As I could not make the agent available for subscription, I will now navigate to the Learning Dashboard folder to demonstrate what we would expect it to look like once available for subscription.