# ESRBI Basic Report Writing Workshop

## Script

### Introduction (00:00 – 01:07)

In the accompanying video, we have used a copy environment. This means that all the data is fictitious and at points there will not be the same quantity of data that you may expect in your own VPD.

For this workshop, we asked that users submit questions ahead of time in order for us to cater the content accordingly and cover what users had requested.

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. We will start today by creating an Analysis with the Workforce Profile subject area. We’ve picked this as most users will be able to understand the content but the functionality covered here is universal and can be applied to all other subject areas. With this in mind, the ESRBI Report Writers Guide is available via the Introduction to ESRBI Dashboard page and the ESR hub, and provides information on each subject area.

### Analysis 1 – Basic Staff List (01:07 – 39:26)

Date filter (01:07)

We are going to start by adding a date filter. Adding a date filter should be one of the first things you do when creating an Analysis as each one will need a date filter with the exception of subject areas reporting in real time. Analyses such as Payment Methods on the NHS Payroll Dashboard and Annual Leave Balances on the NHS Absence Dashboard are reported in real time.

When creating an Analysis, the way to tell if it is reported in real time is if there is no time folder. If there is no time folder it will be reported as at the current date. Otherwise, you must input a date filter. Without a date filter, the report may take a long time to run or even error.

Our first user submitted question asks “How do I restrict the data I am collecting to current data only? If I include pay scale for example, I would get multiple lines if they had a change. This also happens with addresses. I just want the current one. Is there an easy way to ask of it ‘as of today’s date’ or do you always have to have an effective date?”

To restrict data to the current data you will need to enter a filter for today’s date or the specific date you are looking at. You can also set the date filter to a period of time. With the pay scale example, if you filter using a date range and the ‘between’ operator it will show all the pay scales that an employee has been on during that time, but if you set the date filter to a specific date it will show the pay scale as of that date.  
  
To answer the second part of the question; yes you will always need a date filter (apart from when it is real time as I discussed earlier). It could be a manually entered date such as 1/1/2020 or you could use the SQL expression CURRENT\_DATE which we will look at in the next example.

In this example I am going to look at assignment status. I would have used pay scale as per the user’s example however there was no data in the copy environment, available to let me demonstrate this. The principle remains the same however.

First I am going to add assignment number and assignment status. I can double click the columns or drag and drop.

I am now adding in a date filter where we use the between operator so the data we are looking at is between two dates. I have pre-picked the dates as well as assignment number to ensure we are using a good example. We now run the Analysis.

During the period of time specified this assignment number had two different assignment statuses.

We can also add in effective start and end dates to see when this applied.

There are now multiple rows as there would have been different assignment changes during the period, but as we can see there was only one change in assignment status and the dates will indicate when this happened. It is important to be aware that the start and end date can be due to multiple assignment changes.

We will now look at what happens when we change the date to a specific date.

After running the Analysis, we now return one row as expected.

Now that we have had a look at effective dates, we are now going to create a basic staff list Analysis but before this we need to remove the current columns. We can do this by clicking the two crosses on the upper right hand side. You can also do this for the filters; however I am just going to remove the assignment number filter.

Earlier a user asked about if we could set the date to always be returned as of the current date. To do this I am going to edit the date filter.

Remove the current value. Go to Add More Options and then SQL Expression. There I type in CURRENT\_DATE and press ok. Now every time we run the Analysis it will be as of the current date.

Building the analysis (10:06)

With this Analysis we are going to start with employee based columns and then build up the information. We can source columns from the folders but also use the search function.

Once we have run the Analysis, we have one row per employee. Whilst on the results page we can add more columns to save going back to the criteria page.

Now we have added in the assignment number, we can see that some employees are returning two rows and we have to use the scroll bar to view everyone.   
  
We will go to Table Properties and set the page to content paging which will remove the scroll bar. We will also define the number of rows per page.

As we add more information and go to a greater level of detail, we are going to a lower level of granularity.

Looking at the employee number column you will be able to see that there are gaps where the number is not repeated. I am now going to amend this so all rows are filled in/set to repeat.

To do this we go to more options, column properties and set the field to repeat.

Now I am going to add more columns that we want for our Analysis.

We can also rearrange the placement in the columns in the results tab. Setting the column placement in the results tab is where they will appear within the Dashboard. We are now going to save the Analysis and create a folder to save it in. For all the objects created today, we will be keeping the same naming convention.

We have now created a basic Analysis.

Creating a prompt (18:00)

We are now going to move on and create a Prompt. A Prompt is the group of drop downs, text fields, and radio buttons that appear at the top of a Dashboard page and allow you to filter the Analysis on the page.

Before we create the Prompt itself we need to set up the corresponding filters in the Analysis. We are going to create a Prompt with three drop downs but only have two corresponding filters to show what happens when we do not set up a Prompt correctly.

To do this we select the field we wish to create a filter based on. Click the options on the right hand side, and then filter. In the filter pop-up we want to select ‘is Prompted’. We are doing this for both Organisation and Main Staff Group. We are going to create a Prompt for Area of Work but not set up the corresponding filter.

We have set up the filters so we will save. We then navigate to new, and then Dashboard Prompt.

We select the Workforce Profile subject area. And Navigate to the top of the screen. Click the green plus icon and select Column Prompt. We are creating the Prompt based on the columns in the Analysis.

We are then Prompted to select the column. Some columns have similar names. We need to ensure that we are using the same as what is in the Analysis.

First we are setting up the Prompt for Organisation. Select Organisation, press Ok.

Open up Options and select ‘Include “All Column Values” choice in the list’ and then set the default selection to “All Column Values”. Repeat for Main Staff Group.

We are also able to amend the order of the Prompts by selecting the Prompt and using the up and now arrows on the right hand side. You can also amend the orientation from horizontal to vertical.

Finally a third Prompt needs to be created for Area of Work. It needs to be set up as per the other Prompts.

We have now created a basic Prompt. This is then saved in the folder created earlier a similar naming convention.

Creating a Dashboard (24:02)  
  
We will now create a Dashboard. Navigate to new and then Dashboard. Name the Dashboard, set its location and decide whether to add content now or later. Choosing to add content later will save the Dashboard to the Catalog. Press ok.

On the left hand side add a column and two sections. We will place the Prompt and Analysis in the sections.

From the Catalog in the bottom left hand side, drag and drop the Analysis and Prompt into place.

Before we run the Dashboard, we are going to look at the scope of the Prompt and report links.

You may have several pages in your Dashboard and you can add more by clicking the green plus icon. If you do this, you may wish that the Prompt works across all Dashboard pages. You will need to ensure that a Prompt is on all pages. But for example, if we restrict staff group to admin and clerical, and the scope is set to Dashboard, this will be applied when we switch pages. If we select page, the Prompt will only affect this one page.

We can set the scope of the Prompt by selecting properties in the top right hand corner of the Prompt in the Dashboard, and then select Scope. There are then the two options: Dashboard or page. By default it is set to page.

Report links are the different options you have beneath an Analysis on a Dashboard. This is where users commonly export the Analysis. This can be set up by navigating to properties in the top left corner of where the Analysis is placed in the Dashboad, and then selecting Report Links. There are many different options including: export, edit, refresh and print.

We have now created a basic Dashboard. Save progress and run the Dashboard.

Scrolling down to the bottom of the Dashboard shows the Report Links that we have just set up.

Use of the Prompts for Organisation and Main Staff Group show how the report is filtered based on the Prompt.

Between applying each filter, the user is able to reset to the default Prompt values.

Use of the Area of Work Prompt shows that there is no change to the results of the Analysis. This is because we did not set up the corresponding filter in the Analysis.

We can also rearrange the columns of the Analysis in the Dashboard. This is a one-time only change and will not be saved.

We can edit our Analysis and Prompt from within the Dashboard instead of going to the Catalog. Now that we have created our basic Dashboard, we are going to go back to the Analysis and look at shared and nested filters.

To edit the objects within the Dashboard navigate to the top right hand corner, select page options and then edit Dashboard. Each individual object can then be edited.

Shared Filters (32:07)

Shared filters are filters that within them contain multiple filters. We can create a shared filter based on the existing filters in the Analysis. You do this by navigating to the right hand side of the filters, clicking the right arrow and the save filter.

In this example, because a copy environment is being used, we cannot save these filters.

We can also apply shared filters by sourcing them in the Catalog. Once sourced, if you double click on the filter it will load and show you all the filters within it. You can apply the filters within the shared filter individually and also have the option to remove existing filters. In this example I am deleting the shared filter as it is for demonstrative purposes only and not required in the Analysis.

Nested Filters (35:25)

Nested filters are a way of combining filters using and/or or logic at different hierarchy levels.

In this example we will filter the main staff group to additional professional scientific and technical. The operator is set to ‘is equal to/is in’. ‘Is in’ is used if there are multiple values.

You could select multiple staff groups here and, like the Prompt, it would bring them all back. However we are going to demonstrate what happens when have two filters. One where the Staff Group is Add Prof Scientific and Technic, and another where it is Admin and Clerical. This will not return any results. Please be aware this is just an example and you would not set this up normally.

If we change the last filter’s operator to an ‘or’ we are now instructing the Analysis to return the staff where it is either this staff group or this staff group – either Add Prof Scienctific and Technic or Admin and Clerical. As a rule of thumb, always work from the bottom up when changing the operators.

We have now returned all the staff with either this or that staff group. In this data, we have had to sort the data to find the other staff group.

Users are also able to add in the filters view to see which filters are used on an Analysis. We will show you where this is done later. We will now save the work and go back to the Introduction to BI page.

Analysis 2 – Headcount by Gender (39:26 – 58:50)

Headcounts and Count Distincts (39:26)

We are now going to create a new Analysis and have a look at more functionality in BI. Again we will use the Workforce Profile Subject Area.

Start by adding a date filter of CURRENT\_DATE.

Headcount ("Workforce Profile Facts"."Headcount") will report the headcount of the employees only where the assignment is flagged as the primary. This is typically used in the summary analyses in the NHS Standard Dashboards, such as the NHS Staff in Post Dashboard.

Other analyses, such as the summaries in the NHS Data Quality Dashboard use a distinct count. In these analyses, the report counts the number of unique employee or assignment numbers that meet specified criteria. It is sometimes more appropriate to count employee numbers rather than primary assignments when returning a headcount.

When highlighting over the available columns in the criteria, the navigation will appear to show which folder the item has come from.

In this example we will create an Analysis using Organisation, Employee Count Distinct and also create our column to demonstrate how the Employee Count Distinct column is written in the formula.

Copying any column and editing the formula will work. The formula used is COUNT(DISTINCT "Employee Attributes"."Employee Number"). Adding in Organisation should make our example more clear.

Viewing the results on the results tab show that Headcount is not always the same as our two Employee Count Distinct columns. But the Employee Count Distinct Columns will always be the same.

Building the analysis (46:53)

For the next example we can remove the two Employee Count Distinct columns and add in Employee Gender Description. In the results tab we can rearrange the columns to how we wish it to be displayed, as well as setting the table properties to content paging and setting the row count.

Adding a filter to only return results where the headcount is greater than or equal to 1 will remove Organisations where there are employees within it but their assignment is not set to primary.

Pivot Tables (49:53)

Another user asked: “I used Discoverer and I was able to create reports in a cross tab format. How would I do this in BI?”

To do this, in the results tab, we navigate to the lower left hand side where it says ‘Views’. Select New View and then Pivot Table.

As mentioned earlier, users can also add a view of the filters to their Analysis results. This can be added here.

Users are then required to drag and drop the columns to their designed location in the Pivot Table layout. In this example, we are happy with how the Pivot Table has come out so now changes are required. We can also amend the content paging for the pivot table view.  
  
New views will need to be added to the compound layout by clicking the right pointing arrow under ‘Views’. Any new views will go to the bottom of the compound layout.

Now we have created a second view we are going to look at export options.

Exporting (52:25)

First we are going to export the table view to Excel. You will see that it is exported the same as in the results tab. When we export via CSV, we only export the raw data and lose all the formatting.

Similarly, when we export the pivot table view it is exported as displayed in the results tab/compound layout. Exporting via CSV exports as per what is set out in the criteria tab, and only the raw data, losing the pivot table view. Navigating back to the Criteria tab shows that the export of the pivot table via CSV exports as per the layout set in the Criteria. This is the same for all analyses when exported via CSV.

We are now going to create a view selector where we can switch between the table and pivot table views. After deleting from the current compound layout, navigating to Views, and then Add New View, other view and View selector, allows users to set a caption, and select the views that we wish to be included in the view selector. We are also able to change the order of which view is displayed first.

We have now finished creating analyses and a Dashboard. We will now cover more of the questions that we had submitted.

Additional Content and Questions (58:50 – 1:13:23)

We have frequently been asked: “Are you able to share reports that you create with other users?” (58:50)  
  
Yes, you can share reports. We are going to look at this in two parts. First sharing within your Organisation and then secondly sharing outside.

Within the folders there are ‘my folders’ which can only be accessed by you and then there is the shared folders. One contains all the National Dashboard items and is managed by us at the NHS Central Team. Then there is the VPD folder. Once an item is placed there it is automatically shared with all users from that Organisation and the object will inherit the permissions set on the folder. In the video, there is no VPD folder as this is a copy environment but users should expect to see this in their Shared Folders.

Permissions can be set by navigating to permissions under Tasks in the bottom right hand corner, or by selecting more, which is available under the name of each object.

BI permissions are set using ‘application roles’ which are roughly equivalent to the URPs in ESR. Each role you apply is done so with an ‘or’ operator. In order to access the object, the user must have at least one of the roles applied. For example the Trust Power user (BI Admin URP) or HR admin.

As this is a copy environment, some of the settings are slightly different. For example the VPD folder is missing from the permissions. However, this will be available to you.

To give access to only HR admin URP holder, ensure that the BI Trust Power User is not removed (so access is retained), and then select BI HR ADMIN from the application roles. Only application roles in capital letters should be used.

Remove VPD else everyone within the Organisation will have access.

Set permission to Read and Execute.

Any objects placed into a folder, will automatically inherit the permissions of the folder it is placed in. This also means that to set permissions to several objects, they can be placed inside a folder and then the permissions set to the folder.

When making a Dashboard available ensure that the correct permissions are set for every object within the Dashboard.

If you accidentally lose your own object, raise an SR.

You may wish to share your analyses with another Organisation, and also if you ever raise a Service Request with ourselves, we may need an archived version of what you are working on so we can investigate. When you are archiving you are not sharing your data. Once the object is unarchived, it will hold the data of the VPD it was opened in rather than created in.

Objects can be archived by first selecting the object, and then navigating to Tasks in the bottom left corner, or under the More option under the object name.

Users will be Prompted to save the file. It will save as a CATLOG file. This cannot be opened like an Excel spreadsheet. It is for sharing purposes only.

The file can then be shared with colleagues or other Organisations.

The recipient of the archived file will need to navigate to the folder in which they wish to save the object, and then select Unarchive under Tasks (bottom left corner).

If archiving a Dashboard, all the objects within it will need to be archived individually

When the user then re-imports them back into ESR BI, users may need to re-link the objects back into the Dashboards as it may still reference it’s previous location.

Another user stated: “I feel it should be relatively straightforward to take a National report and then add some additional fields but I have no idea where to start.” (01:06:51)

To exemplify this we will take a copy of the Fixed Term Contract Analysis and past it back into the folder we have been using.

After selecting the file from the Catalog, users can either use the copy and paste icons at the top of the banner, or by selecting More.

Once pasted in the destination folder, the user will have the option to edit the Analysis.

The Fixed Term Contracts Analysis already has a wealth of information so we will use a basic example of how to add and remove columns. In this example we have removed first and last name of the employee and replaced it with employee name as well as adding in contact information. In the results tab we can see that the new additions have been added to the end of the Analysis. We can then drag and drop the columns into the desired location.

Finally, we have been asked “Is there functionality to be able to schedule reports to run so we can have access to the information immediately on the days when our reports are due? Running several reports can take a long time.” (01:11:55)

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.

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.

We already have several for example one runs at 8am on a Monday and will alert subscribers to substantive members of staff who do not have bank account details entered. We will go over alerting in the Intermediate Report Writers workshop.