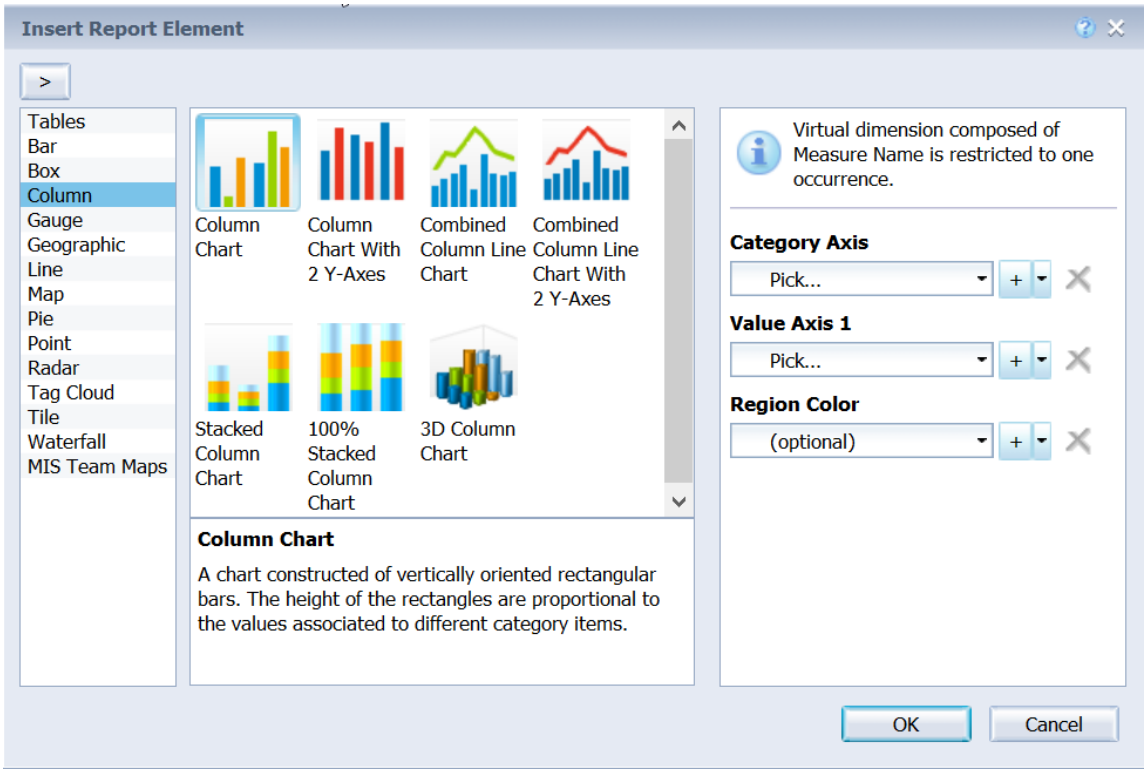
Visualisation – Custom Element "CE Maps" – DRAFT V 1.0

Introduction to a Custom Element by Peter Richards
(aka Macroman in BOb forum http://www.forumtopics.com/busobj/index.php)

I have undertaken research and development into creation of custom elements that can be consumed within BI Launchpad's Web Intelligence application. Custom elements are custom designed visualisations similar to those that already exist within report elements area of Web Intelligence in which values from within the reports data are mapped to the parameters of the element in order to generate a visualisation.



It is early days in that I have a general understanding of how custom elements are designed, and will continue to explore and develop my skills in this area to allow further enhancement of reporting capabilities within BI 4.2. I am quietly confident that I can now generate almost any visualisation that exists in other applications or I can design my own based on business needs. As well as visualisations a custom element can be designed to consume report data and process it through complex algorithms. As a member of a team responsible for administrating our works BI 4.2 environment we are excited to explore this area in more detail and develop all of our skills to provide the customer with an improved environment.

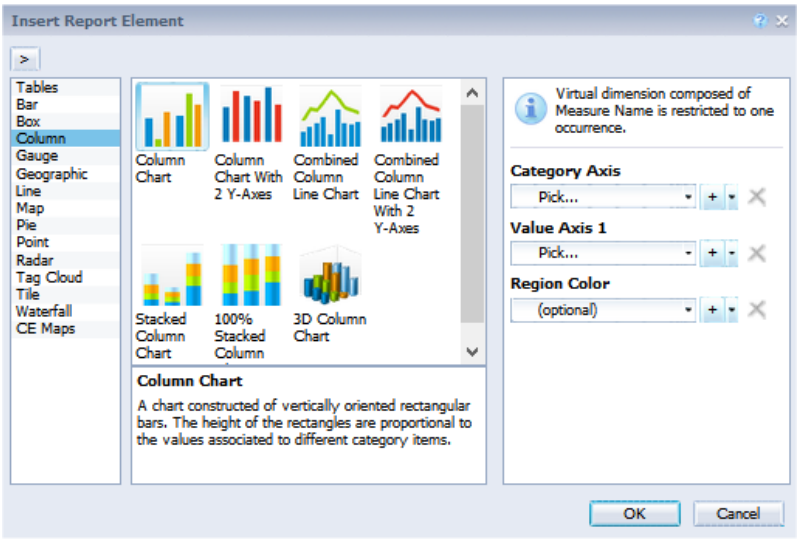
All data within screen snapshots is fictional and does not actually exist as a real record.

Custom Element – CE Maps

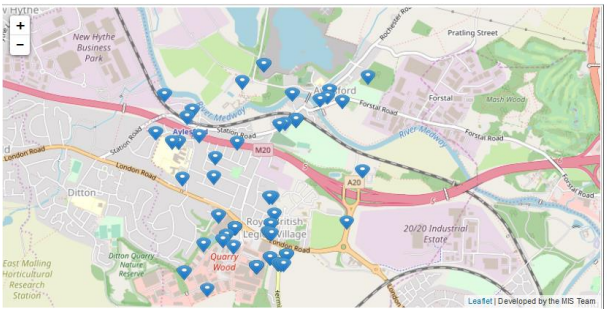
I could not think of a decent name to call the visualisation so will stick with CE Maps for now, CE = Custom Element. My first design undertaken is one which has been requested for many a year by our customers, the ability to produce data points on a map and consume within Web Intelligence rather than export data to a third party application. Previously the solution to consume a map within Web Intelligence involved third party software and third party involvement at great cost, often client application installations and servers to house and process data requests. Many third party applications have been explored and have recently been abandoned due to cost or complexity of configurations required both to client and server files.

Utilising open source software, I have produced a new custom element namely “CE Maps”. There are 4 mapping elements available.

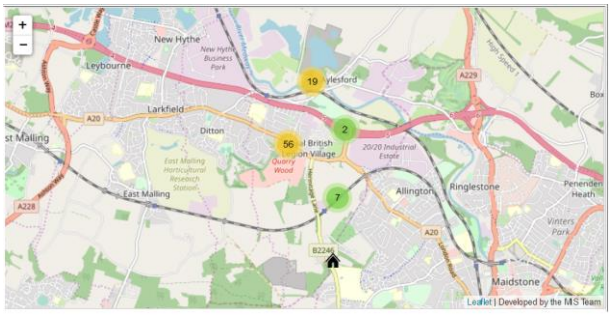
Custom Element – CE Maps



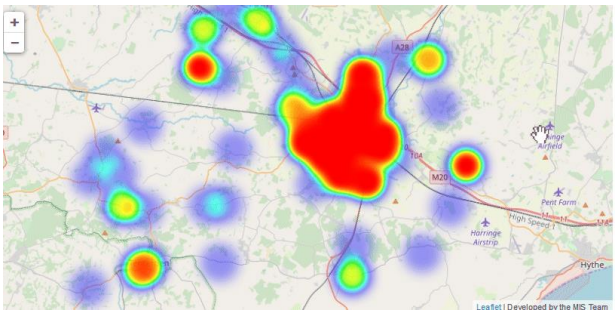
MARKER



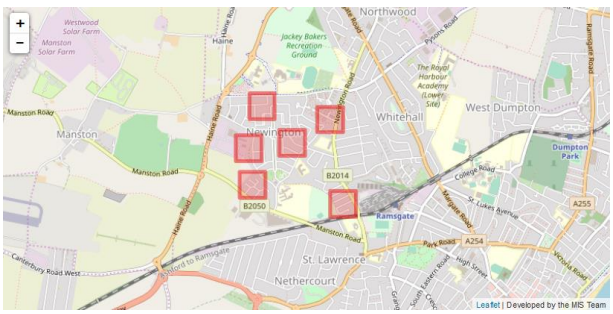
CLUSTER



HEAT



SQUARE



Each of the above elements use the same parameters for mapping data to, this allows you to change from one map type to another without the need to remap data to the element parameters.

Element Parameters

You may need to create new variables to be able to map data to the element as some of the data values will not be available from the data source/universe. **Highlighted** below are those you will definitely need to create a variable for.

Note: If you are using multiple map types within your report then you may need to create additional variables for each map type used. For example if you want a Cluster map and a Square map you will need to create 2 variables for each of the map types Icon Size. Thus for Cluster a variable for Icon Size = 10 but for Square another variable for Icon Size = 500.

Latitude, Longitude - Example value 51.00291, 0.128371. If your data source does not have a Latitude or Longitude object but it does have an Easting and Northing object then you will need to convert the easting and northing to latitude and longitude. We currently do have a custom function to do this in our environment but alas I am not the author of it's design and thus cannot share it with you.

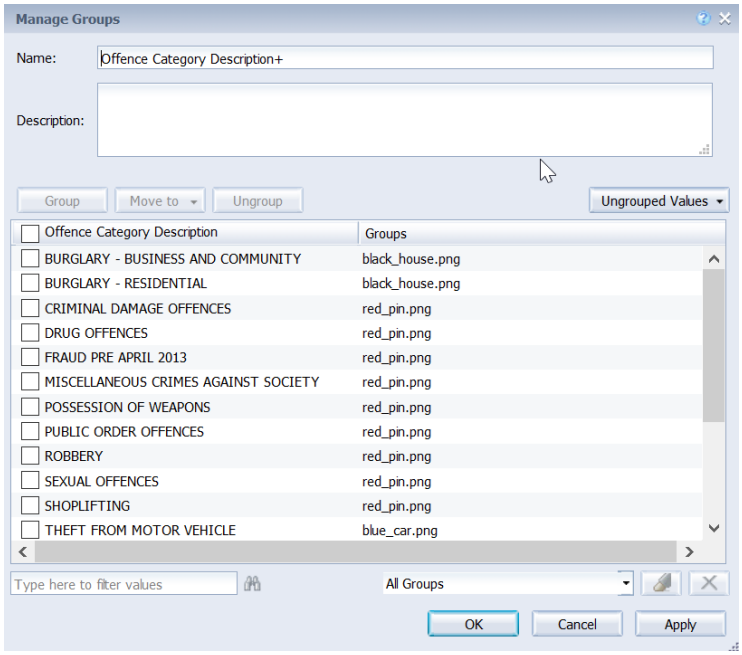
Map Width,Height - Example value ="800,400". This is the size of the map to be drawn within the block on the page, you may need to resize the block so your map fits inside the block or alternatively decrease the Width and Height values.

Map Zoom - Example value = "10". When the map first loads the map will zoom to a certain level.

Icon Image - Example value = "blue_marker.png". There are plenty of marker images created that can be used. Map icons are saved to the BI server, for a list of those available or if you wish to use your own custom icon contact the MIS Team.

Note for the Square map the Icon Image requires you to enter a colour in HEX format, for example for a black square = "#000000", red square = "#ff0000" and blue square = "#0000ff". To identify the hex value of a colour visit https://www.w3schools.com/colors/colors_picker.asp

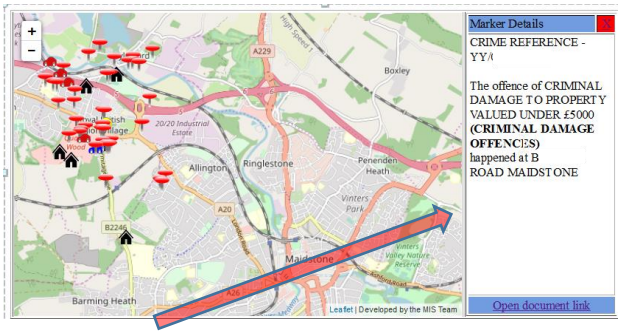
You can also group a dimension object to use different icons (or hex colours) per dimension value. Example below for Crime Category. From the screen snapshot below you may be able to guess where I work.



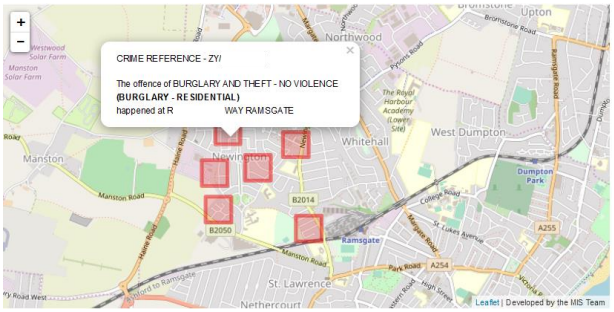
Icon Size – Example value = 10. This is the size of the icon that is displayed on the map for both Marker and Cluster. For the Square map the value would represent the perimeter of the square in metres, for example set this to a value of 500.

Marker Detail – When an icon is clicked either a panel will appear or a pop up balloon with details pertaining to that icon. If you wish to announce to your customer details of that icons location such as crime details, outcome and full address etc., then create a variable that will concatenate these details together. You can use HTML syntax to structure the text, such as bold ***<b>***my text***</br>,
*** which is carriage return or change font and colour using ******my text***.***

Marker and Cluster map (panel)



Square map (pop up)



Marker Detail Width – Example value = "200". Width of the panel that appears within the map. Usually set this to a quarter of the actual map width and adjust as needed.

Document URL – You can generate a report link and assign it to a variable. For example opening up a new Web Intelligence report in which the report lists crime details or a link to another dashboard report. Left clicking this link does not work, instead right click the link and select open in a new window or tab.

Intensity Measure – Example value = 10. Strength of the intensity of the heat map. This variable must be a measure. It is not used in Marker, Cluster or Square but for these 3 elements the parameter still requires a value to allow us to switch between the different map types. Increase or decrease the value as required until the heat map intensity looks reasonable.

Multiple maps

You can copy a map and paste it elsewhere on the report canvas or paste onto another report tab. Each map will be processed separately. However what we cannot do yet is section the report because all maps will be treated as identical. I will at some point amend the JS file to allow this to happen, by taking the name/ID of the map within the script from a customer's variable, so eventually we will be able to section a report to offence categories and each map will represent that category. For now to achieve separation of multiple maps on a canvas you will need to filter each block to the category/dimension object value as required.

To change from one map type to another without having to assign each element parameter again, right click the cell/block and select Turn Into, More Transformations, then select a different map type.

Printing

Unfortunately because the tile layers are imported from a source outside of BI, BI will not know about the map layers displayed on the screen, only the web browser will render the map. Therefore you will not be able to export the map to PDF or Excel as you can currently with other report elements. As our skills increase within the team on custom elements we will explore this to see if we can make it possible to do so, but for now only a screen snapshot is possible.

BI Workspace and Web Intelligence rich client

Custom elements will not render inside a BI workspace. Custom elements are not available to Web Intelligence rich client. BI Launchpad Web Intelligence is the only area currently that will render custom elements, this is by SAP design preventing this.