



REAL BI USER GUIDE

HPCC Systems Solutions Lab

Abstract

Step by step walkthrough of how to setup and use Real BI.

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Contents

Introduction	2
Environment.....	2
Login.....	2
Workspaces.....	2
Create Workspace.....	2
Populate Workspace	3
Create folder	3
Create dashboard.....	3
Dashboards	4
Dashboard Options	4
New Chart	4
Dashboard Filters	8
Relations (Interactivity).....	11
Create Relation	11

Introduction

Real-BI is a set of prebuilt tools for business intelligence to support HPCC without needing any third party tools.

Additional layers and tools are always expensive to implement and even more expensive to support and learn. This is especially true if data movement from one layer to the other is required. This movement introduces a new level of obscure abstraction and can create a significant security and maintenance risk. The purpose of Real BI is to empower HPCC developers to be able to shape their data and visualize it in an extremely agile manner directly from HPCC without having to move or copy their data.

Environment

Real BI is currently located at: <http://realbi-hackathon.eastus.cloudapp.azure.com/>

Login

If you don't already have login credentials, please contact a member of the Real BI team.

Workspaces

Create Workspace

A workspace is a collection of folders and dashboards. You can create a new workspace by clicking the "New +" button.



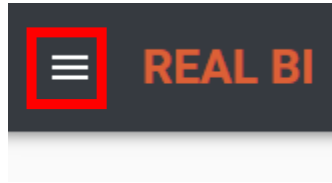
Give your workspace a name and click "Save".

A modal dialog box titled 'New Workspace'. It features a text input field with the placeholder text 'Workspace Name'. At the bottom right of the dialog are two buttons: a gray 'CANCEL' button and a blue 'SAVE' button.

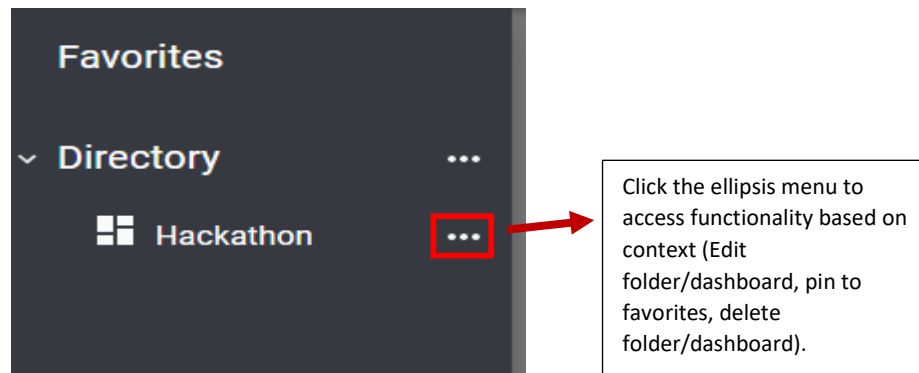
You can create multiple workspaces to store different hierarchies of folders and dashboards.

Populate Workspace

Click on the “hamburger” menu in the upper left-hand corner to access your folders and dashboards.



After clicking the menu and opening the left-hand drawer, you will have the ability to create new folders, subfolders and dashboards.



Create folder

Start by creating a new folder.

A "New Folder" dialog box with a white background and a dark border. It has a title "New Folder" at the top. Below the title is a text input field labeled "Folder Name". At the bottom right, there are two buttons: "CANCEL" and "CREATE".

Create dashboard

Click on “Create Dashboard” from ellipsis menu shown in above picture.

- HPCC Cluster
- Dashboard Name

New Dashboard

HPCC Cluster

Dashboard Name

CANCEL
CREATE

After choosing a cluster, you will have an opportunity to include any credentials needed for accessing that cluster.

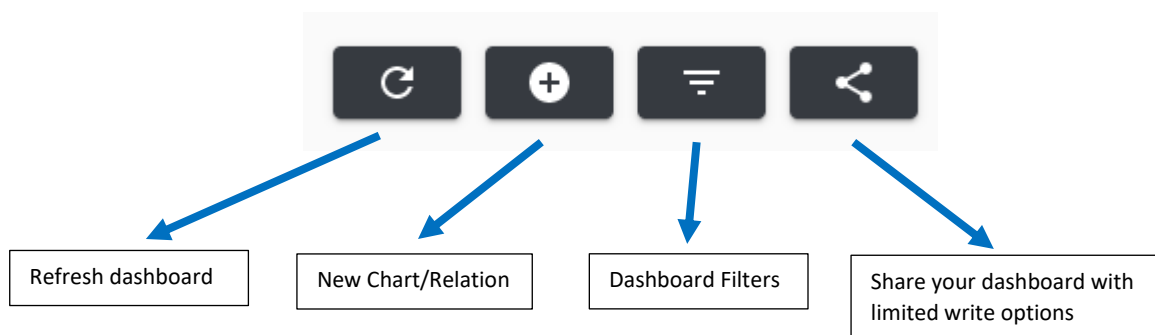
Once you click “Create”, your new dashboard will be displayed in the left-hand menu and it will also be opened in the main window. You will see a blank page with your dashboard name populated in the tab bar and in the middle of the window.

You can return to the left-hand directory menu any time by clicking the icon in the far left-hand corner of the screen. Please note you can have multiple dashboards open simultaneously and cycle through them using the tabs menu.



Dashboards

Dashboard Options



New Chart

To create a new chart click on the plus sign on the upper right-hand side and choose “Add Chart”.

Source Type

Query

Queries are ECL scripts that are deployed to a ROXIE cluster, which pre-loads them into memory and prepares the queries for execution by multiple users. They are typically used to quickly pinpoint small sets of records and can accept predefined parameter inputs to manipulate/filter the underlying dataset before returning the output to the user.

Start typing the name of the query name you want to use for your chart and the “Query Name” dropdown will populate with any matched query names from the cluster. Make sure you select the active query and do not worry about the version number.

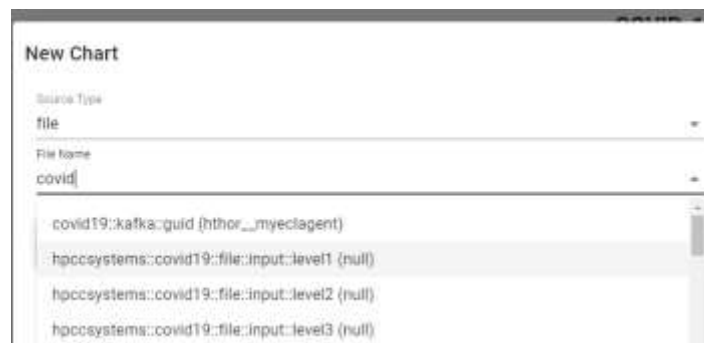


File

Logical Files are files that have been sprayed/imported into an HPCC cluster.

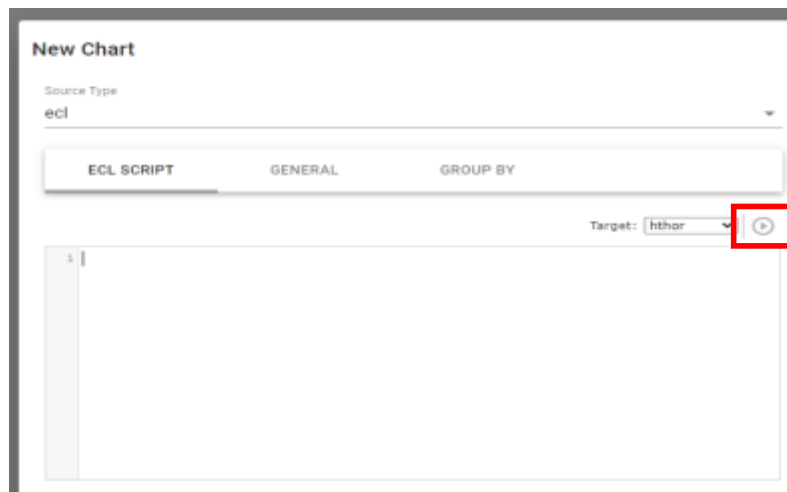
Note: They are not the most ideal data source since the retrieval of data is not being optimized by a Roxie cluster. As the number of rows you attempt to retrieve from a logical file increases, the performance of Real BI may decrease.

Start typing the name of the file you want to use for your chart and the “File Name” dropdown will populate with any matched file names from the cluster.



ECL

This provides an editor for you to write and execute you own custom ECL scripts. Once you write your script, you need to execute it with the play button against your target node.



The screenshot shows the 'New Chart' interface. At the top, 'Source Type' is set to 'ecl'. Below this, there are three tabs: 'ECL SCRIPT', 'GENERAL', and 'GROUP BY'. The 'ECL SCRIPT' tab is currently selected. In the 'Target' field, 'hthor' is entered. A red rectangular box highlights a play button icon located to the right of the 'Target' field.

Once you execute your ECL statement, you can click the generated workunit ID to view the results/errors of your script in ECL Watch.

Dataset

Once you have the query/file name populated or have executed a successful ECL statement, select the dataset (an output from the query/file/ECL) that you want your chart to be based on.

Note: For files and ecl scripts, the application will only return the first 5,000 rows of results by default. You may override this limitation from the Parameters tab.



The screenshot shows the 'New Chart' interface. 'Source Type' is set to 'query'. 'Query Name' is set to 'hpccsystems_covid19_query_daily_metrics (roxie)'. Below this, a dropdown menu is open, showing three options: 'latest', 'summary', and 'trends'. The 'latest' option is currently selected.

General

Chart Type

Select the chart type you wish to use to visualize your data.

Chart Values

Name your chart accordingly and use the dropdowns to select the fields from your dataset that you want your chart to be based on. You can click the “refresh” option on the upper right-hand side to preview your chart.



Parameter

Parameters are inputs that the query/file accepts to filter the data by.

GENERAL
PARAMETERS

locationfilter: string

topx: number

typefilter: string

Group By

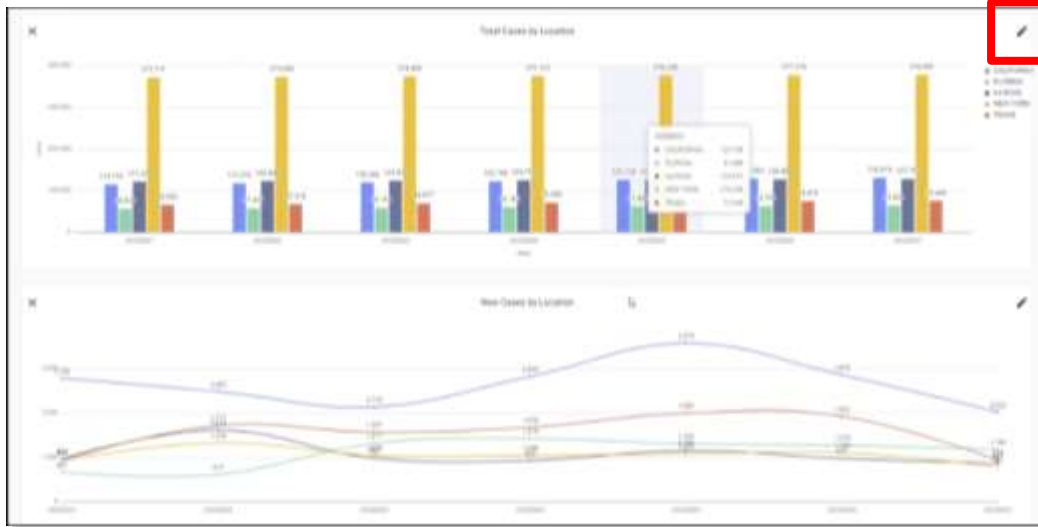
Gives you the ability to group your data by another field in your dataset.

GENERAL
PARAMETERS
GROUP BY

Group Field

Notes

- Your dashboard can contain multiple charts from the same or different queries, files, etc.
- Also, your dashboard will always capture the latest data from a query. However, if there is a newer version number for your query, you will need to rebuild your chart.
- Once a chart is created, an “Edit” option is available in the upper right-hand of the chart.

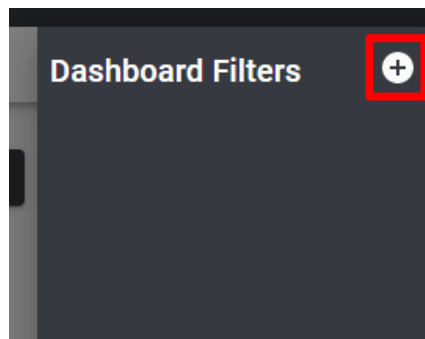


Dashboard Filters

Dashboard filters give you a way of filtering multiple charts within a dashboard by the same values. Please note this only works if input parameters are exposed by the underlying data source of the chart in question.

Create Dashboard Filter

Clicking on the dashboard filter button will open the right-hand filter menu. Click the “+” button to create a new dashboard filter.



Source Type

Query

The definition of a query can be found [here](#).

Start typing the name of the query name you want to use for your filter and the “Query Name” dropdown will populate with any matched query names from the cluster. Make sure you select the active query and do not worry about the version number.

File

The definition of a file can be found [here](#).

Start typing the name of the file you want to use for your filter and the “File Name” dropdown will populate with any matched file names from the cluster.

ECL

This provides an editor for you to write and execute you own custom ECL scripts. Once you write your script, you need to execute it with the play button against your target node.

Once you execute your ECL statement, you can click the generated workunit ID to view the results/errors of your script in ECL Watch.

Dataset

Once you have the query/file name populated or have executed a successful ECL statement, select the dataset (an output from the query/file/ECL) that you want your filter to be based on.

The screenshot shows the 'Dashboard Filter' dialog box with the 'SOURCE' tab selected. The 'Filter Name' field is empty. The 'Source Type' dropdown is set to 'query'. The 'Query Name' dropdown is set to 'hpccsystems_covid19_query_daily_metrics (roxie)'. Below this, a list of datasets is shown: 'latest', 'summary', and 'trends'. The 'latest' dataset is selected. At the bottom right are 'CANCEL' and 'SAVE' buttons.

Targets

The targets tab is where you will define the charts that will be affected by your filter. This allows you to map the values from within the filter to the parameters of each chart on your dashboard. You need to select the charts and their corresponding parameters that will accept the values from the filter.

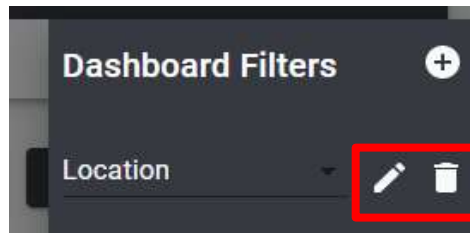
The screenshot shows the 'Dashboard Filter' dialog box with the 'TARGETS' tab selected. The 'Filter Name' field is empty. The 'Source Type' dropdown is set to 'query'. The 'Query Name' dropdown is set to 'hpccsystems_covid19_query_daily_metrics (roxie)'. Below this, a table is shown with two columns: 'Target Chart' and 'Target Parameter'. The first row has 'New Cases' in the 'Target Chart' column and 'locationsfilter' in the 'Target Parameter' column. The second row has 'Target Chart' in the 'Target Chart' column and 'Target Parameter' in the 'Target Parameter' column. At the bottom right are 'CANCEL' and 'SAVE' buttons.

Filter Values

The filter that is created will be a dropdown with a list of values. Use the left-hand side of this menu to select a query that contains the values you require.

Once you have selected a field from a query and dataset that contains the values you need, save the filter.

Here is our newly created filter. You can edit or delete the filter by using the corresponding icons to the right of each filter.



Using Filter

The filter dropdown is a multi-select dropdown and can be used to filter charts by a single value or multiple values.



Relations (Interactivity)

Relations is the method by which we can relate charts together and achieve interactivity. Interactivity is the ability to click on an element within a chart and use that click to filter/manipulate other charts on the dashboard.

Currently, the only charts that support click events are the bar, line, and table chart types. However, any chart type can be filtered by a click event from one of the aforementioned chart types.

Create Relation

To create a new relation click on the plus sign on the upper right-hand side and choose “Add Relation”.



Relations work on a similar principle to dashboard filters. You can define a relationship between multiple charts and the value from clicking the “Source Chart” will be used to filter the “Target Chart”.

Chart Relations

—

Source Chart

Total Cases

▼

Source Chart Field

location

▼

Target Chart

New Cases

▼

Target Chart Field

locationsfilter

▼

Source Chart

▼

Source Chart Field

▼

Target Chart

▼

Target Chart Field

▼

CANCEL

SAVE

The image above shows the creation of a relation between the “Total Cases” chart and the “New Cases” chart. Now, when clicking on the “Total Cases” chart the other chart will filter to match the value that was clicked.

Please note that these relationships are one-way only. If you want the inverse relationship, you will need to define it separately.