

SOP: Data extraction and analysis from DWH using Metabase

[Last update: July 2023]

Goal: Facilitate self-service initiative in data extraction from DWH and analysis using Metabase.

Objective:	<i>Provide guidance on how to perform data extraction from DWH platform and analysis using Metabase.</i>
Target group:	<i>SI, Health Informatics, M&E, Data Managers</i>
Requirements:	<i>Internet connectivity, Valid login credentials to DWH</i>

Overview

This document acts as a guide to exploring and visualizing the data warehouse database using Metabase. Metabase is an open-source self-service platform that one can install and host locally. Alternatively, you can access our hosted installation at: [KHMIS Installation](#).

Operations

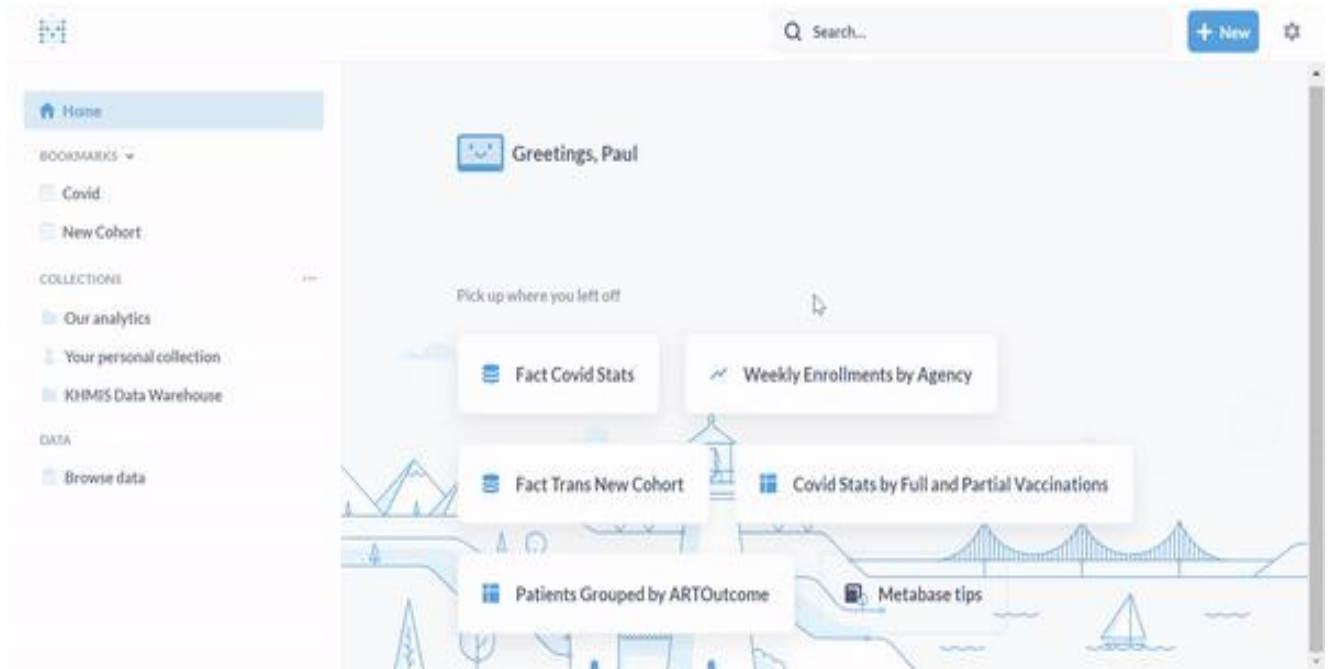
The following sections provides guide on various operations with Metabase. They include Connection to Data source, Database querying, Data Visualizations, Data exports among others.

Connect to data source

The first thing you'll want to do is connect to a data source that you want to explore:

Steps:

1. Log into Metabase using your provided credentials and navigate to the "Admin Settings" link.
2. Go to the Databases tab and click on the "Add database" button to set the database connection properties.
3. Fill in the connection details and click on the "Save" button at the end of the form to connect. Metabase should then sync the database schema.

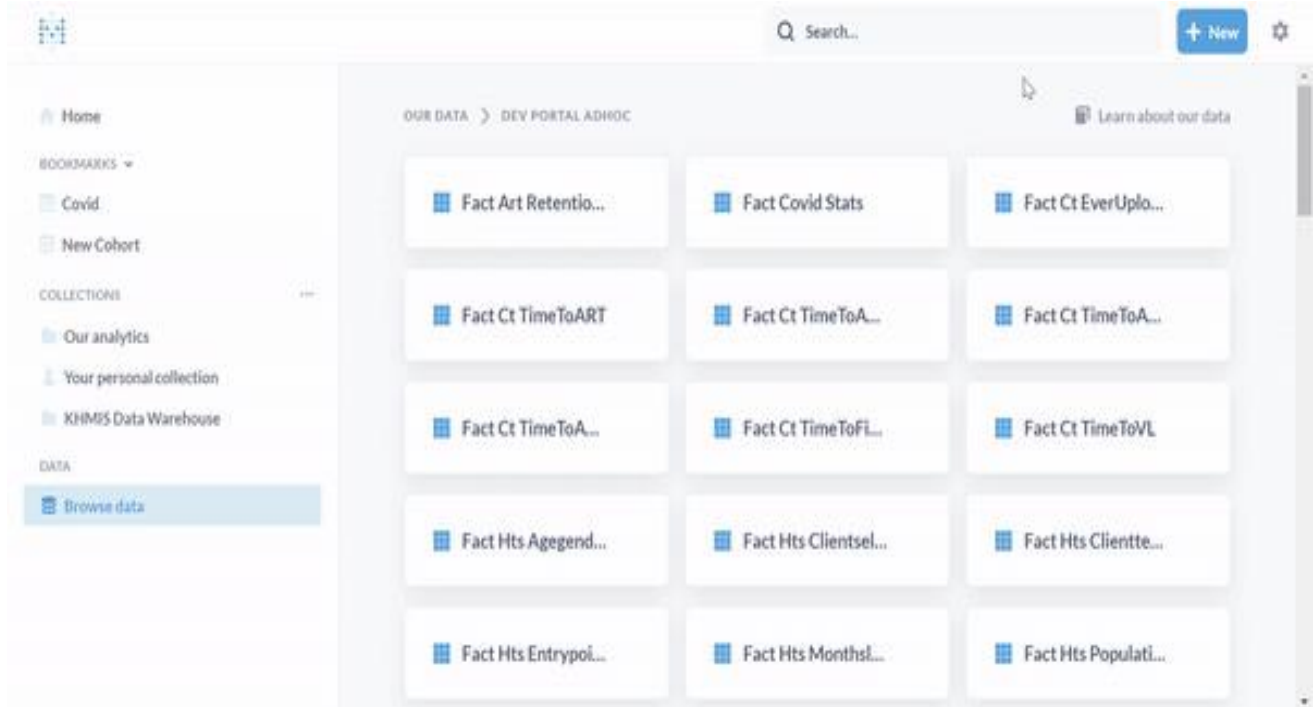


Explore relations in the data source

Now that you have connected to our data source, you can explore the relations and get some meaningful information from the data. To do this, follow these steps:

Steps

1. From the Home page, click on the "Browse data" link which should be located at the bottom of the sidebar.
2. Locate and click on the data source that you want to explore.
3. You will get a list of tables where you can:
 - a. Click on the table widget to get a summary of the table data.
 - b. Hover on the table widget and click on "x-ray this table" to get an in-depth summary of the table.
 - c. Hover on the table widget and click on the "Learn about this table" link to get details and a description of this table.

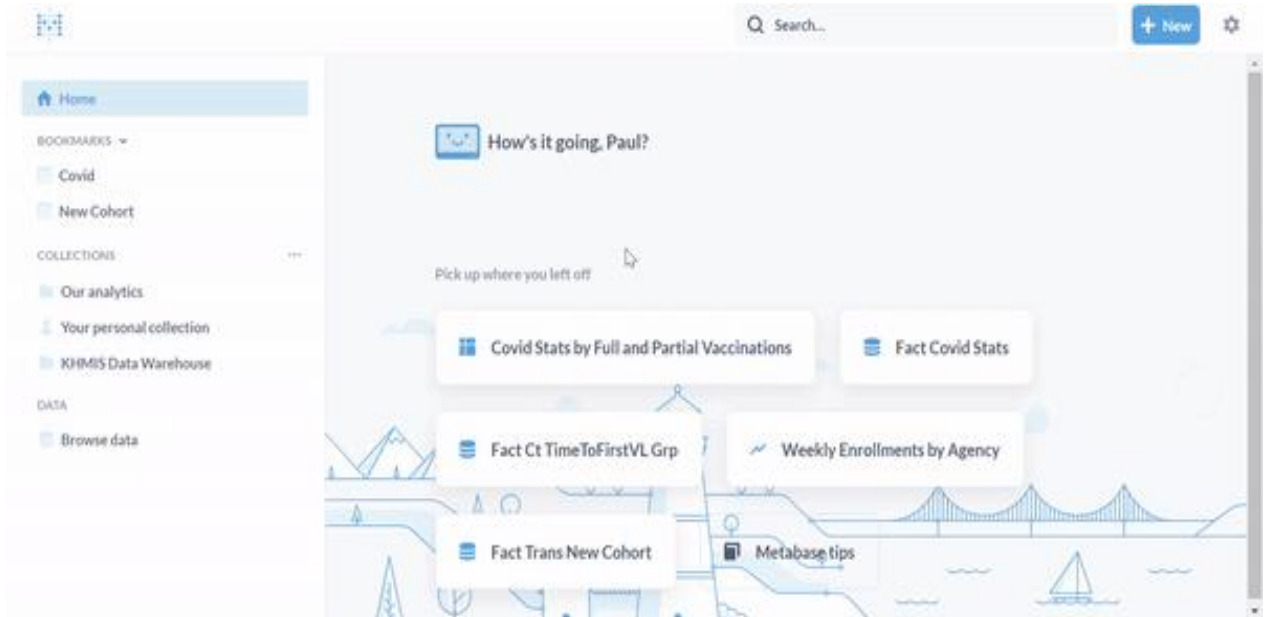


Building Queries and Presenting Visualizations

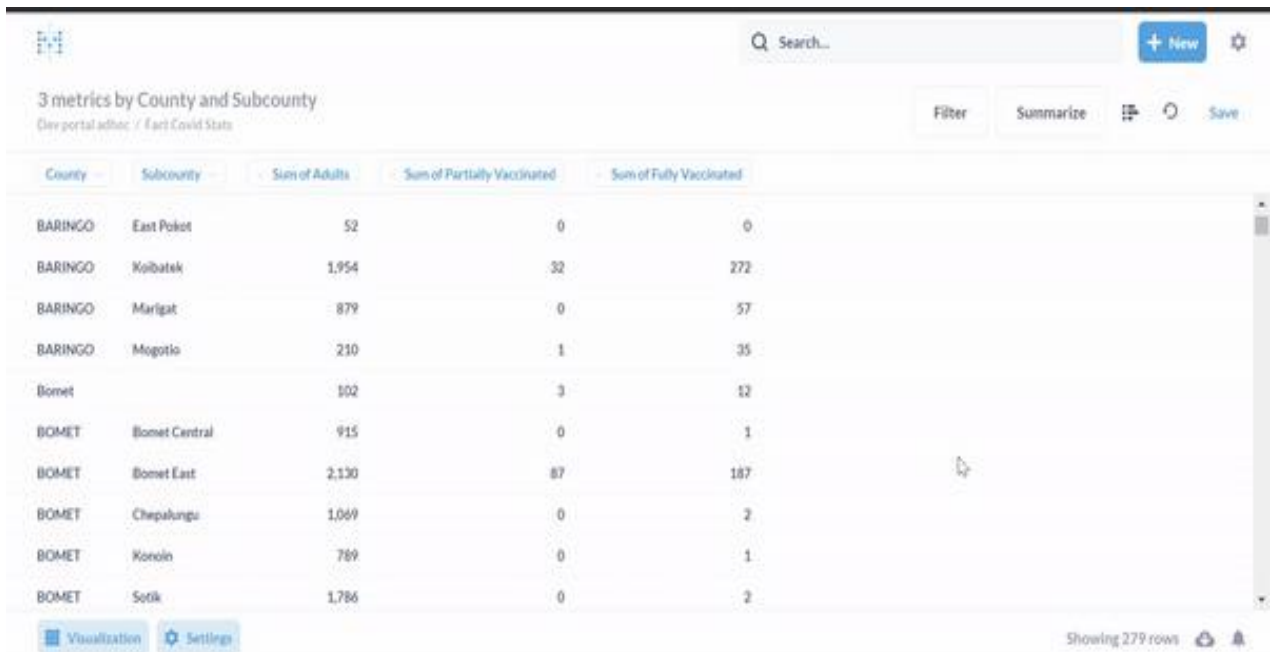
If we want to explore our data further, we can build our own query against the tables available to us and visualize the returned data using the Metabase provided charts. Queries in Metabase are in form of Questions to the database.

Steps:

1. Click on the “+ New” button at the top right of the navigation bar and select the Question option.
2. Choose the database and table that you want to base your question on.
3. Use the provided query builder to design your question and click on “Visualize” to get the computed question visualization. Metabase will, by default, visualize your query as a table.



4. You can change this by clicking on the **“Visualization”** link at the bottom of the page and choosing your preferred chart.



The screenshot shows a table view of data for '3 metrics by County and Subcounty'. The table has columns for County, Subcounty, Sum of Adults, Sum of Partially Vaccinated, and Sum of Fully Vaccinated. The data is as follows:

County	Subcounty	Sum of Adults	Sum of Partially Vaccinated	Sum of Fully Vaccinated
BARINGO	East Pokot	52	0	0
BARINGO	Kolbatak	1,954	32	272
BARINGO	Marigat	879	0	57
BARINGO	Mogotio	210	1	35
BOMET		102	3	12
BOMET	Bomet Central	915	0	1
BOMET	Bomet East	2,130	87	187
BOMET	Chepalungu	1,069	0	2
BOMET	Konoin	789	0	1
BOMET	Sotik	1,786	0	2

At the bottom of the table, there are buttons for 'Visualization' and 'Settings', and a status bar indicating 'Showing 279 rows'.

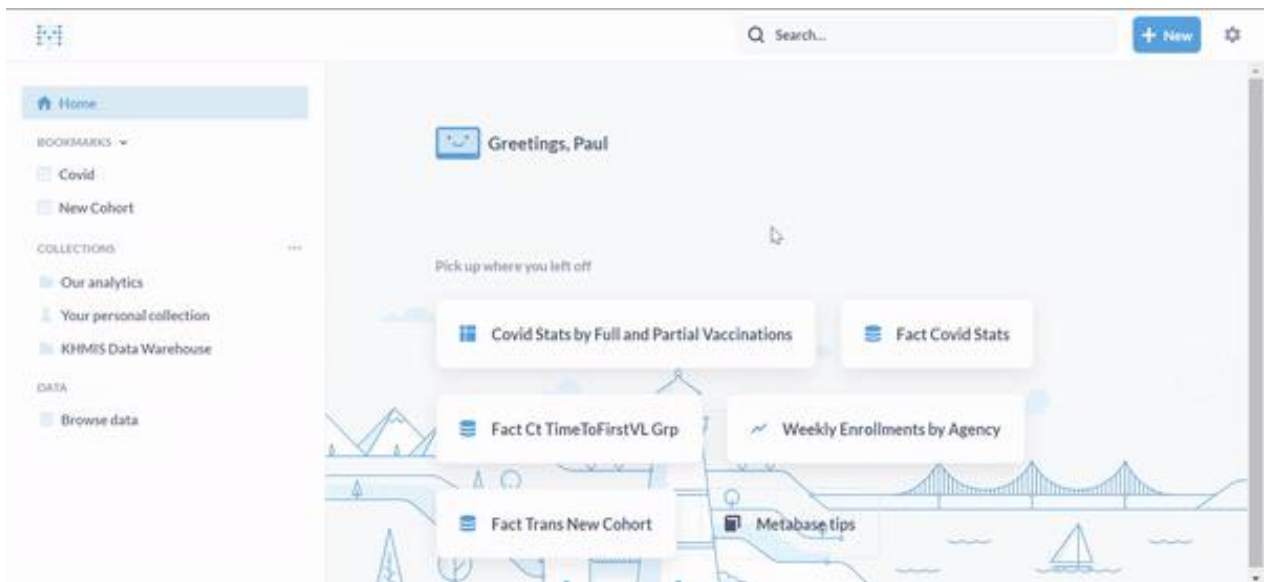
5. Save your question. Metabase will give you the option of saving to your personal collection or creating a new one.

Export Data

We may want to export our data to a more standardized format and Metabase allows us to export our data in excel, CSV, or JSON.

Steps

1. Go to our previously generated question. It should be in the collection that we saved it in.
2. Click on the export option at the bottom right of our page and select your preferred option.
3. The browser will download the export into your downloads folder.

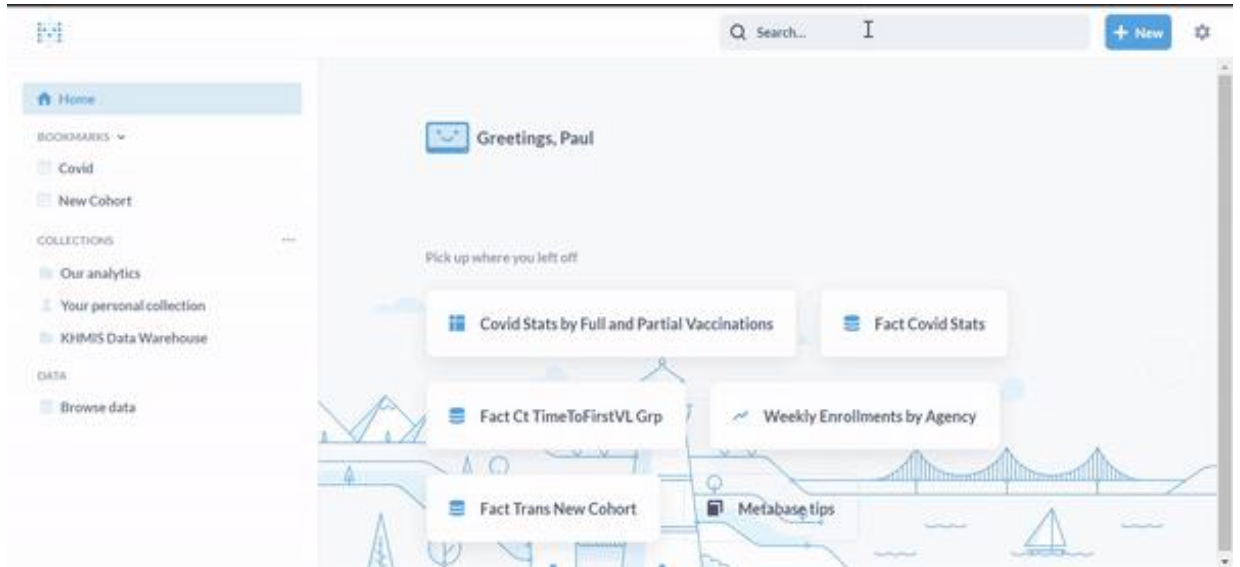


Subscribe to Dashboard

A Metabase dashboard is a collection of visualized questions that can better represent our data. It is possible to subscribe to a dashboard and get scheduled messages from it. The messages are sent via email and slack.

1. Navigate to your dashboard which should be in your saved collection.
2. In the dashboard view, click on the “subscriptions” icon and choose the channel that you would prefer (Email or Slack).
3. We have chosen email as our option. Set the subscription properties by typing in the recipients and schedule frequency.

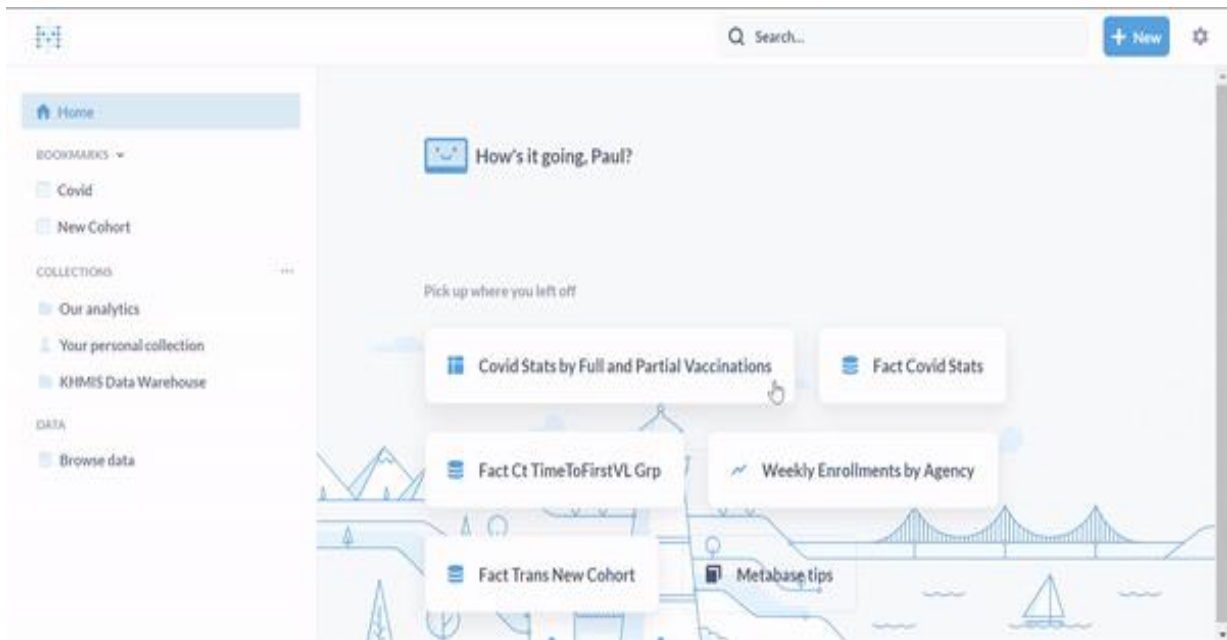
4. You can send a test email by clicking the “Send email now” button or wait for the email to arrive based on the configured schedule.
5. Click on the “**Done**” button once you’ve fully configured your subscription.



Run Raw Query

Whereas Metabase provides a query builder that you can use to design questions, it is still possible to use raw SQL queries.

1. Click on “+ **New**” button at the top right of the navigation bar and select the SQL Query option.
2. Select the data source that you would like to query and input your query in the provided text area.
3. Run the query and the default visualization for your question will appear at the bottom section of your page. You can then change your visualization option or save the question to a collection → Dashboard.



For more references on how to use Metabase in data extraction and analysis, please refer to the online documentation on [this link](#).

THE END