



TECHNICAL DOCUMENTATION

2021

DHIS2 FUNDAMENTALS
&
THE PCF DASHBOARD DATA
ENTRY

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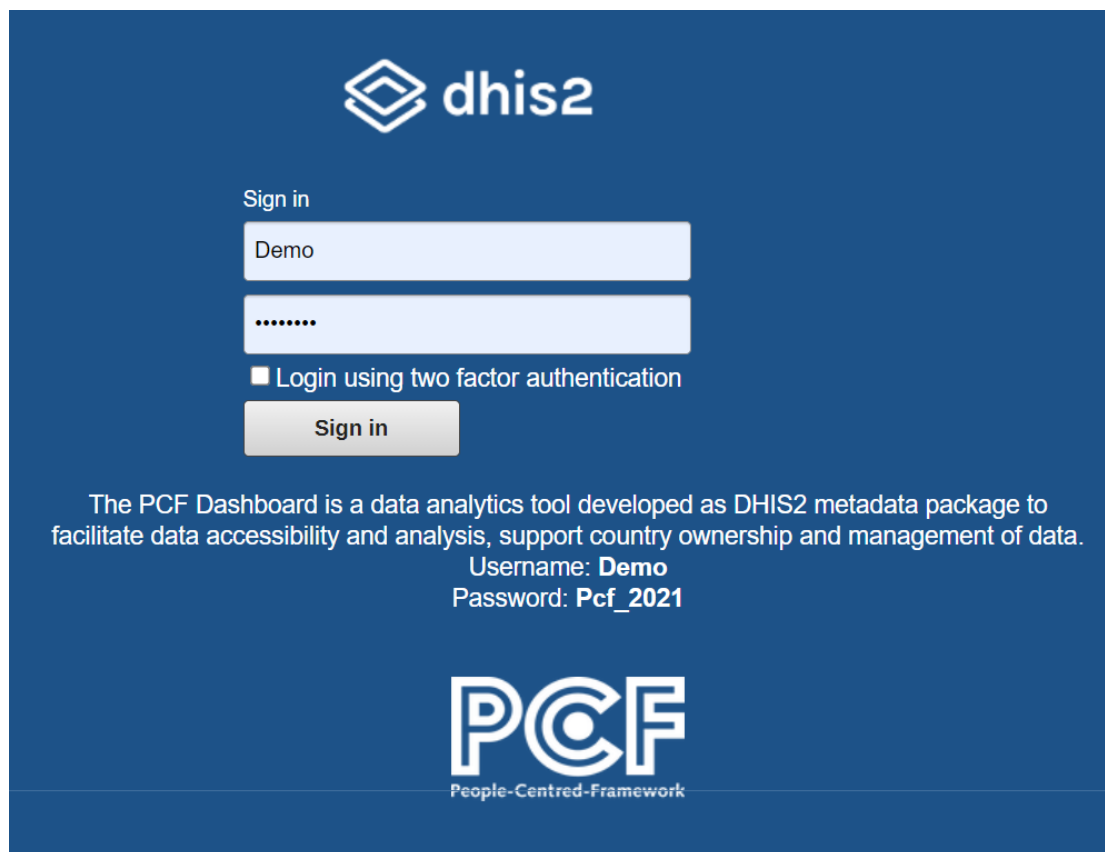
1. DHIS2 Fundamentals

This section provides an overview of the fundamentals of DHIS2: how to log in, an overview of the different data models available, and a description of data dimensions.

The demo server is available on <https://pcf4tb.org/dashboard>

Basic Authentication

With basic authentication only a valid username and password are required to access your account.



Sign in

Demo

.....

☐ Login using two factor authentication

Sign in

The PCF Dashboard is a data analytics tool developed as DHIS2 metadata package to facilitate data accessibility and analysis, support country ownership and management of data.

Username: **Demo**
Password: **Pcf_2021**

PCF
People-Centred-Framework

Figure 1: PCF Dashboard Login screen

Once you have entered your username and password, click the 'Sign in' button. If authentication is successful, the dashboard screen will open up.

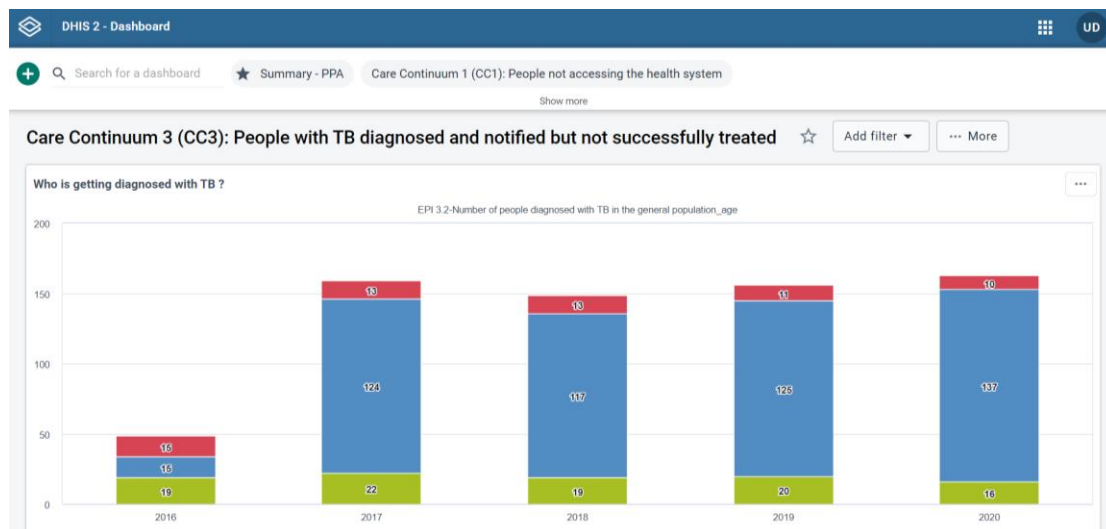


Figure 2: Analytics Dashboard Page

Password Set Up and Recovery

To avoid issues when resetting your password, ensure your chosen password meets the following requirements:

- Contain at least 8 characters
- Not contain more than 40 characters
- Contain at least one special character (non-alphanumeric character)
- Contain at least one upper-case character
- Contain at least one lower-case character
- Contain at least one digit (number)
- Not contain the username or email address of the user account
- Not contain generic words such as *system*, *admin*, *user*, *login*, and *manager*
- Not be one of the previous 24 passwords the user has used. This does not apply in case when a super user resets the password for another user

For more information on password recovery, [click here](#).

Dimensions

Organization Units - 'Where'

Organization units are geographic location(s) describing *where* the data are collected. Organization units can consist of geographical areas, such as countries, regions, and districts as well as facilities such as hospitals, clinics, and offices.

The organization unit hierarchy defines the organizational structure of DHIS2. For example, how health facilities, villages, administrative areas, and other geographical areas

are ordered and arranged with respect to each other. The organization unit hierarchy is built upon parent-child relationships. For example, the continent of Africa would be the parent to the African country of Ethiopia (i.e., child). In DHIS2, each of these children (or levels) is an organization unit (org unit). A server, may have Regions, each of which may have a number of Countries as children. Usually, the lowest level consists of Villages/Locations where data are collected as this is where activities typically occur. Data collection can also be located at higher levels, but in some cases, data is collected at the lowest level of the service delivery point.

DHIS2 is structured so that the organizational unit hierarchy is a geographical hierarchy, and the Geographical Information System (Maps) module depends on this hierarchical structure. Additional hierarchies (e.g., the sublocation structure or a hierarchy based upon the type of organization units) can be modelled using organizational groups and group sets. Note that the organizational hierarchy is the main vehicle for data aggregation on the geographical dimension.

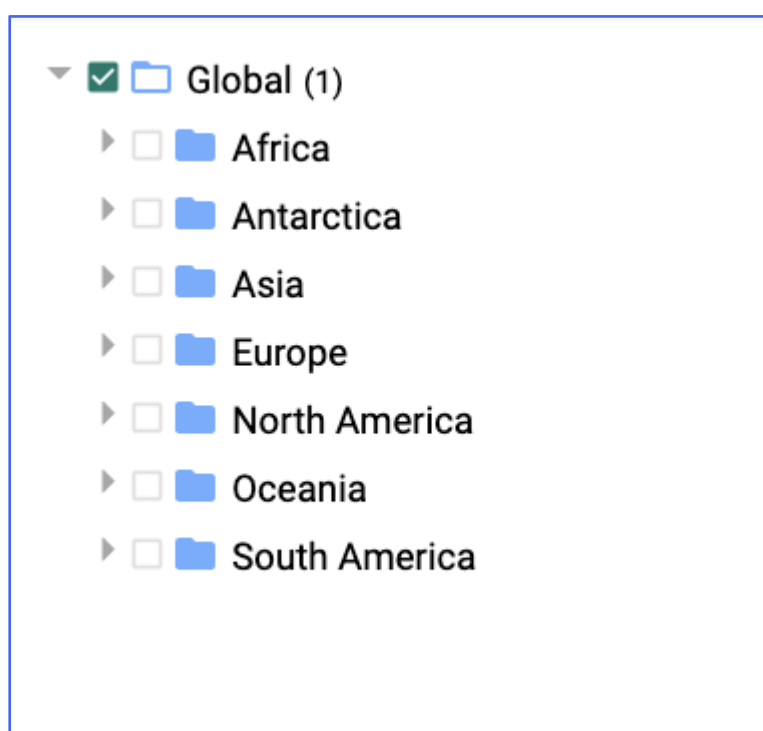


Figure 3: Example Organizational Unit Structure for the Continents

Data Elements – ‘What’

The data element is perhaps the most important building block of the database. It represents the ‘*what*’ dimension, explaining what is being collected (i.e., the raw data captured). The data element often represents a count of something, and its name describes what is being counted. For example, “*Visits done by health staff to released detainees*” or “*Among new cases assisted, number of ill treatment cases*”. The data element becomes important for all aspects of the system as it decides not only how data are collected, but how the data values are represented in the database, which determines how data can be analysed and presented.

EPI 0.10-TB/HIV treatment coverage or notification_Absolute value
EPI 0.10-TB/HIV treatment coverage or notification_Lower limit
EPI 0.10-TB/HIV treatment coverage or notification_Rate value
EPI 0.10-TB/HIV treatment coverage or notification_Upper limit
EPI 0.11-Successfully treated HIV-positive TB patients on ART using the cohort of the previous year_Lower limit
EPI 0.11-Successfully treated HIV-positive TB patients on ART using the cohort of the previous year_Percentage value
EPI 0.11-Successfully treated HIV-positive TB patients on ART using the cohort of the previous year_Upper limit
EPI 0.12-Estimated incidence of RR/MDR-TB_Absolute value
EPI 0.12-Estimated incidence of RR/MDR-TB_Lower limit

Figure 4: Examples of data elements used in the PCF dashboard

Indicators- 'What'

Indicators are a core object of data analysis in DHIS2. Indicators represent calculations performed on data elements. For example, the number of TB cases in a population is the data element and the calculated percentage of malaria cases in a population is the indicator. Indicators provide percentages, incidence rates, ratios, and other formula-based units.

Examples of indicators include:

- Percentage of patients tested for HIV
- Annual malaria parasite incidence rate
- Maternal mortality ratio (per 100,00)

An indicator consists of a formula that can be made up of data elements, constants, organization unit group counts and mathematical operators. They always consist of a numerator, denominator, and factor (i.e., 1, 10, 100, etc.). The numerator is divided by the denominator and that value is multiplied by the factor. The factor is customized by the DHIS2 instance and can be any number.

Periods – 'When'

The period dimension defines *when* a particular piece of data were collected. Periods are the time periods or dates associated with the data. It is also required when analysing data to make it comparable over time. For example, when looking at cumulative data and creating quarterly or annual aggregated reports, or when doing analysis that combines data with different characteristics like monthly routine data, annual census/population data or six-monthly staff data.

Fixed Periods

In DHIS2, periods are organized according to a set of fixed period types, such as daily, weekly, monthly, and yearly. These fixed periods are used during data collection and analysis. The following ISO 8601 calendar types are supported:

- Daily
- Weekly:
 - These are defined as ISO weeks, beginning on Monday and ending on Sunday
 - EPI weeks are also available beginning on Wednesday, Thursday, Saturday and Sunday
- Monthly: Refers to standard calendar months
- Bi-monthly: Two-month periods beginning from January E.g., January-February, March-April
- Quarterly: Standard ISO quarters, beginning in January E.g., January-March, April-June
- Six-monthly: Six-month periods beginning in January E.g., January-June, July-December
- Yearly: This refers to a calendar year, January 1st to December 31st
- Financial year
 - April: Financial year period beginning on April 1st and ending on March 31st of the next calendar year E.g., April 1, 2020, to March 31, 2021
 - July: Financial year period beginning on July 1st and ending on June 30th of the next calendar year E.g., July 1, 2020, to June 30, 2021
 - October: Financial year period beginning on October 1st and ending on September 30th of the next calendar year E.g., October 1, 2020, to September 30, 2021
- Six-monthly April
 - Six-month periods beginning on April 1st with a duration of six calendar months E.g., April-September, October-March

Relative Periods

In addition to the fixed period types, DHIS2 also supports relative periods . A relative period operates with reference to the current date.

Examples of relative periods include:

- Last 14 days
- This month
- Last month
- Last 6 months
- This quarter
- The last 5 years

For example, if a report is created with the relative period of “Last month” the data displayed in that report will be relative to the current date. In addition, these periods move forward with time, meaning that the report will always display the data from the last month (it is not a fixed period). DHIS2 will always show the results for the previous month with reference to the current month. When designing a monthly report, it is recommended to create a report that can be reused every month without having to make changes to the report date to accommodate for the changes in period.

Aggregation of Periods

While data is collected at a given frequency to standardize collection and management, this does not put limitations on the period types that can be used in data analysis and reports. Just as data gets aggregated up the organizational hierarchy, it is also aggregated according to period. This means quarterly and annual reports can be created based on data that is being collected at the same or a greater frequency, for example, monthly. The defined period type for a data entry form defines the lowest level of period detail possible in a report.

2. Data Entry App: Aggregate data

The **Data Entry app** is where you manually enter aggregated data in DHIS2. You register data for an organisation unit, a period, and a set of data elements (data set) at a time. A data set often corresponds to a paper-based data collection tool. You configure the data sets in the **Maintenance** app.

Opening the data entry app

To open the Data Entry app use the 'Search apps' menu in the upper right corner of the home dashboard. From the Apps menu, click the Data Entry icon.

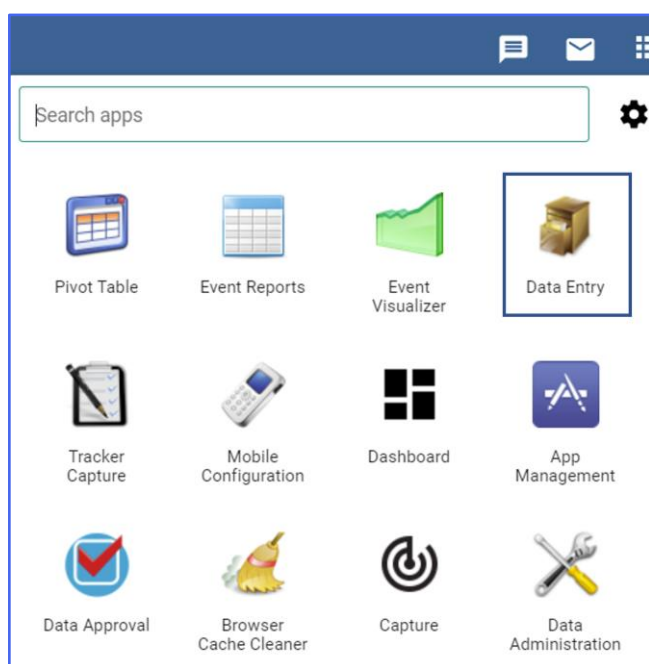


Figure 5: Data entry app

Enter data in a data entry form

1. Open the Data Entry app.
2. In the organisation unit tree to the left, select an organisation unit.
3. Select a Data set.
4. Select a Period.

The available periods are controlled by the period type of the data set (reporting frequency). You can jump a year back or forward by clicking **Prev year** or **Next year**.

5. Enter data in the data entry form.

- A green field means that the system has saved the value.
- A grey field means that the field is disabled, and you cannot enter a value. The cursor will automatically jump to the next open field.

Figure 6: Data entry interface

- To move to the next field, press the tab key or the down arrow key.
- To move back to the previous field, press Shift+Tab or the up-arrow key.

Figure 7: Data entry error

- If an invalid value is entered, for example a character in a field that only accepts numeric values, a pop-up will be displayed explaining the problem and the field will be coloured yellow (not saved) until the correct value is entered.

- When all errors are corrected errors and data entry is completed, click 'Complete'. The system uses this information when generating completeness reports for district, county, province, or the national level.

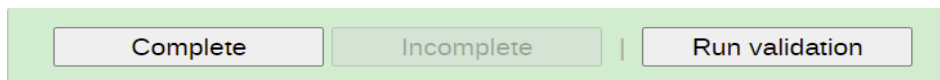


Figure 8: Data entry complete / save