DISIS – DHIS 2 Integration

There has been a need to integrate the DISIS system with the DHIS 2. The integration primarily focuses on the pushing aggregate data in the DISIS to DHIS 2, so that we lessen the burden of having to capture in DHIS2 what is present elsewhere.

The HISP Uganda team has been collaborating with the IDI team that implemented the DISIS solution in order to accomplish this assignment. To pilot this integration, we have focused on the AMR surveillance data that is present in the DISIS database in raw form. The raw data gives us an opportunity to aggregate it at a monthly level for any given facility (regional referral or organization unit).

Solution Overview

Typically, for the integration of both systems we consider the following:

1. Matching facilities/laboratories in the DISIS to organization units in DHIS 2
2. Mapping indicators in the DISIS to appropriate dataElements and categoryOptionCombos in DHIS 2. Simply put, indicator mapping.
3. For each facility or regional referral hospital, we generate monthly aggregate data from the DISIS raw data. For pilot purposes, the aggregate data targets all the indicators in the “AMR surveillance” section of the “HMIS 105:10 – OPD Monthly Report (Lab)” data set.
4. The aggregate data is then transformed into the format consumable by the [dataValueSets](https://docs.dhis2.org/en/develop/using-the-api/dhis-core-version-236/data.html#webapi_sending_data_values) API of DHIS 2.
5. The transformed data in d) above be now pushed to DHIS 2 via the API within the integration script, or better still handed over to a data exchange middleware where we can monitor what is exchanged between the two systems. The monitoring helps to identify what; is successful, failed, has errors. Additionally, we can resend those that had errors.

The DISIS database shall have some changes to the data models to cater for facility matching and indicator mapping. SQL scripts to populate these models have been built and shall be provided for import into the MySQL DISIS database.

The Architecture for the integration.



Figure 1 DHIS2 - DISIS Integration

The architecture above illustrates the solution we have described above and implemented. Each of the marked numerical steps in the architecture described as follows:

1. A Python script has been created to read aggregate data from the DISIS database. The data read is typically for a given facility/laboratory, a specified month and indicators. The script is passed the year and month as arguments in order to extract aggregate data for a given month. Currently, it only supports all the data in “AMR Surveillence” form. We shall extend the script to cater for other indicators with the data set.
2. Data transformed to a DHIS 2 API formatt is then directly submitted to DHIS 2. This option is for where a data exchange middleware is not use.
3. In the presence of a data exchange middleware, aggregate data generated by the script is queued into the data exchange middleware – which then orchestrates it submission to DHIS 2 with appropriate monitoring.
4. The data exchange middleware submits data to DHIS 2, but also monitors progress.

The complete solution shall be pushed to Github and link shared with the team.