



Global Energy Storage Database (GESDB): Enhancing Features and Validation Procedure

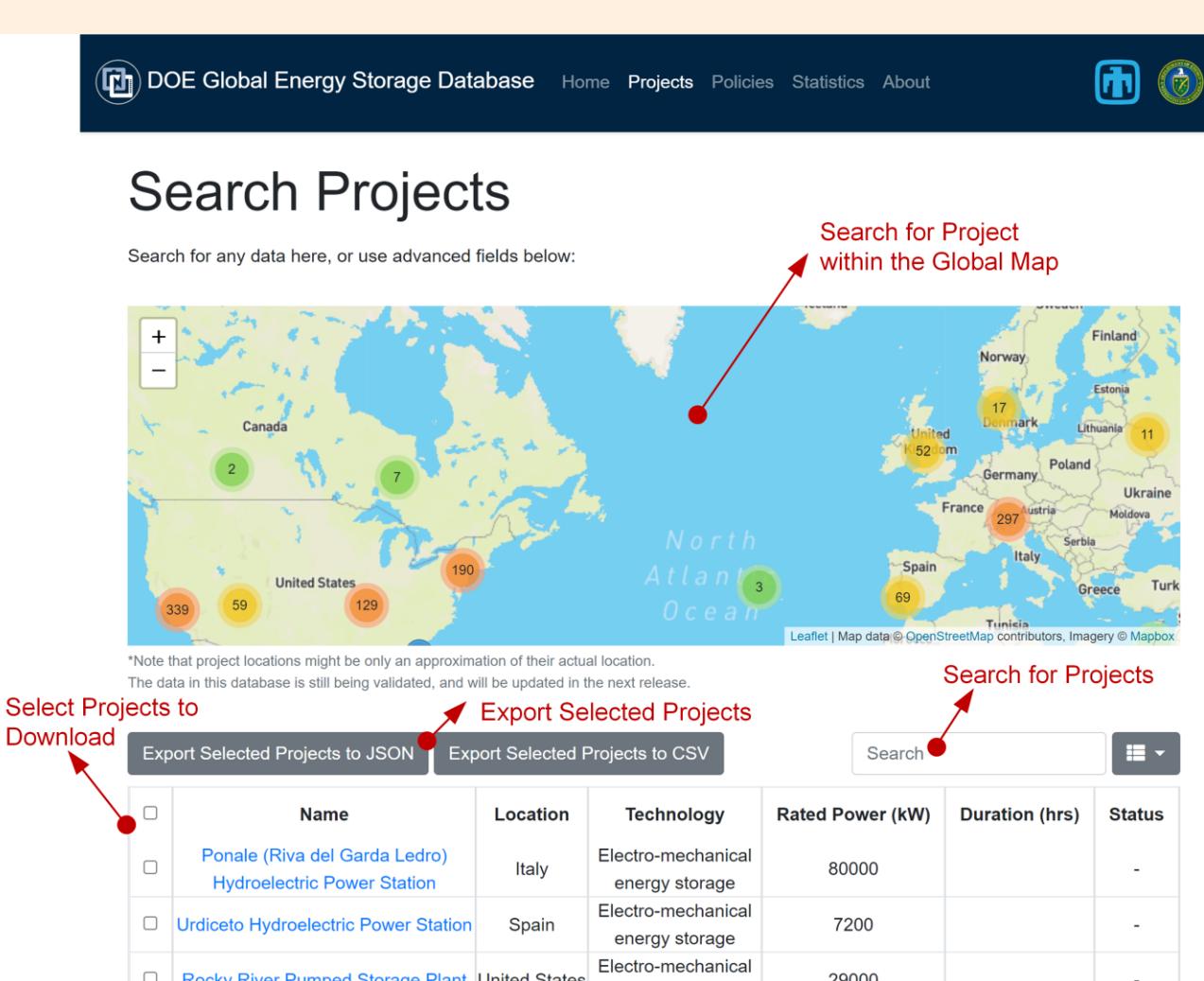
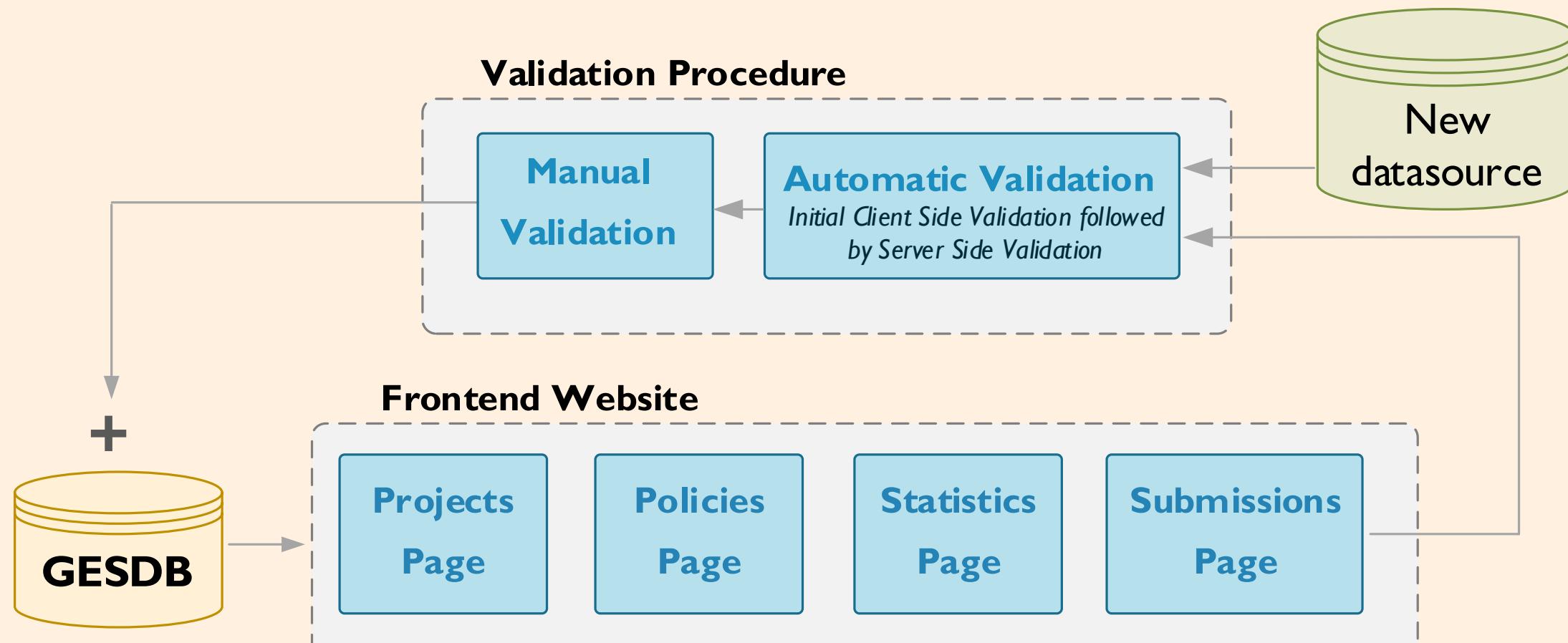
Project Team: Ujjwol Tamrakar, Alvaro F. Bastos, Samuel Roberts-Baca, Sahil Bhalla, Will McNamara, Tu A. Nguyen
Contact: tunguy@sandia.gov

Abstract

In this work, we present an overview of all the features of Global Energy Storage Database (GESDB) including several new enhancing features. This is followed by a detailed description of the procedure used to validate the database. The objective is to make the validation procedure transparent so that the users are aware of all the underlying assumptions and are able to accurately interpret the data.

Features of GESDB

Website: <https://gesdb.sandia.gov>



- Project Page** Users can navigate, search, and download a particular project or a set of projects
 - 1694 projects → 90 GW of energy storage projects worldwide
- Policies Page** relevant federal and state policy documents
- Statistics Page** interactive statistics and visualizations
- Submissions Page** Allows users to submit new data to the GESDB

Current Issues and Future Direction for GESDB

Missing/Incorrect/Outdated Data

Robust Database Structure

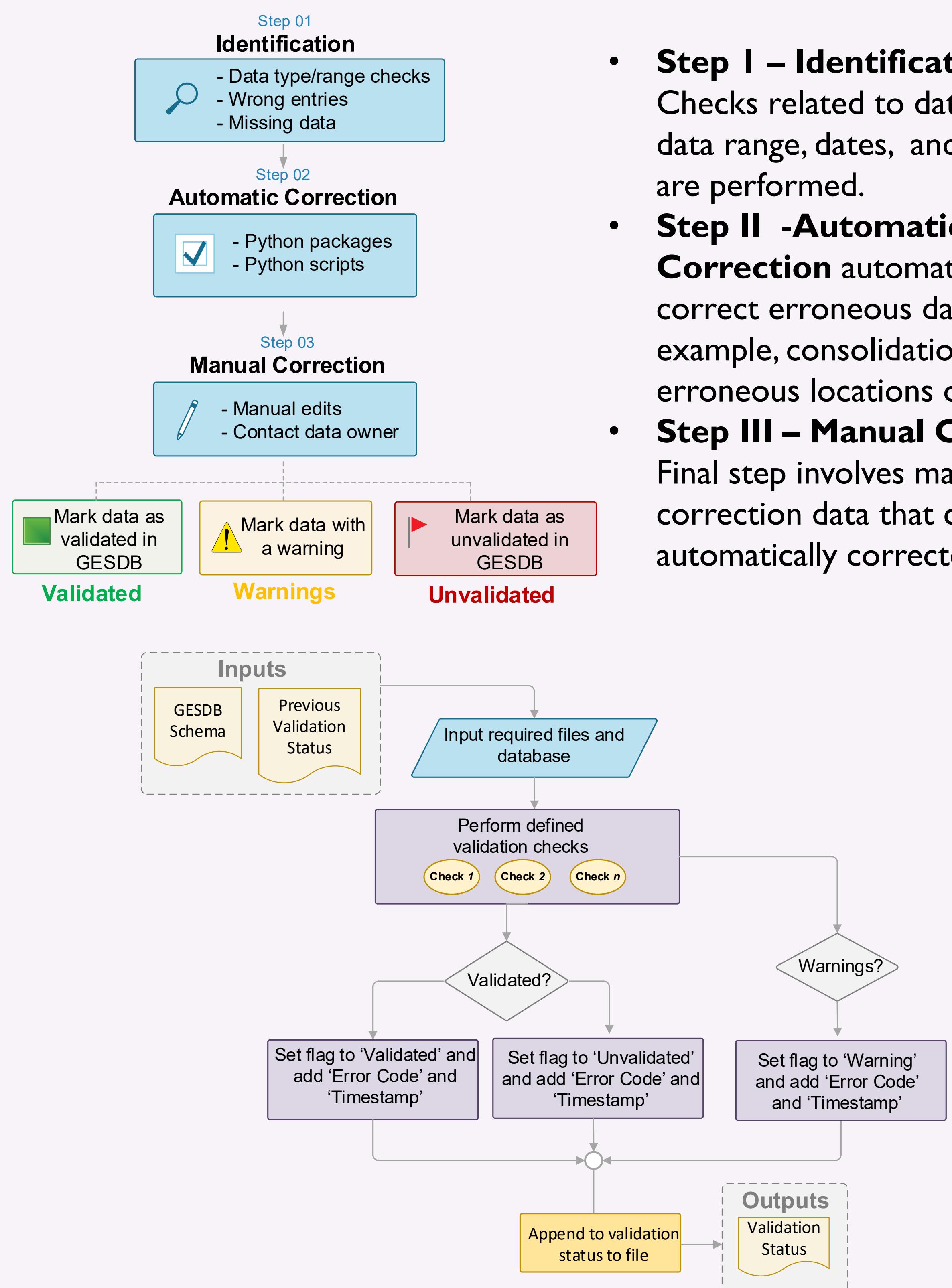
Lack of an API

Fully Automated Validation

- Enrich database further through yearly request for information
- Migrate to robust database framework structure (SQL, MongoDB)
- Develop an API for efficiently accessing/querying the database for power users
- Automate validation through extensive testing of the procedure.
- User Interface (UI) and User Experience (UX) improvements to the website

Validation Procedure

- Step I – Identification**
Checks related to data types, data range, dates, and locations are performed.
- Step II -Automatic Correction** automatically correct erroneous data (for example, consolidation of erroneous locations of projects)
- Step III – Manual Correction**
Final step involves manual correction data that cannot be automatically corrected



Results from Validation Procedure

Required Data Missing	Data Range Violations	Invalid Data Entries	Capacity to Rated Power Ration Exceeded	Data Error Warning
10701	1795	126	70	90

- Results indicate quite a few data that are designated as required by the defined rules are missing
- Most project have the basic information that can be very useful to the user.
- GESDB team is continuing the efforts to supplement the missing information

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References

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