

Data Base Model Ideology/ Configuration

- As given in the Project Description the following fields are Mandatory
 - Manufacturer (e.g., Siemens, D-Link, AVM, ABB, ...)
 - Please refer to the link for all vendors needed for the project:
[Vendors](#)
 - Model/Name (e.g., S7-1500, DIR300, Scalance-X, ...)
 - Version (e.g., 1.2.3)
 - Type (e.g., Router, Switch, Firewall, PLC, ...)
 - Release Date (if available)
 - Checksum (sha512)
 - EMBA tested (yes/no)
 - EMBA link to report (filesystem)
 - EMBArk link to report (http://...)
 - Firmware downloads link (vendor link)
 - Firmware filesystem link (to find it on the filesystem)
 - Additional Fields:
 - Firmware filesystem unique index id for each new file added into DB or local file system (In future, to integrate with EMBA/EMBArk)
 - Additional Data (e.g., all additional description about the product)

- **Implementation and Various uses of Data base models:**
 - Currently, the DB system should be available in local system as provided by Industry Partner Michael Messner.

So, the unique way to keep in local is through .db files i.e., used for data storage which will be handled by SQLite library rather than the flat files mentioned below, and sqlite3 is an inbuilt library in Python. Later on, the local DB will be merged with the EMBArk/ EMBA.

Official Python documentation of SQLite:
<https://docs.python.org/3/library/sqlite3.html>

- Various Methods of maintenance in local file system i.e., by flat files:
 - CSV file/ Excel file (.xlsx/ .xls)
 - xml
 - JSON and
 - Even custom formats
- SQLite is preferred as in flat files there will be redundant data mapped for each column which will eventually cause duplication in data for each root data.
- Various Methods of maintaining data on client/ server-based database structure using the libraries:
 - MySQL Connector
 - PostgreSQL (need a driver; psycopg2) and etc...,

Note: As the DB model may change further based on the necessary /requirement amendment's, there can be some deviations from the above tables.