

## **Documentation**

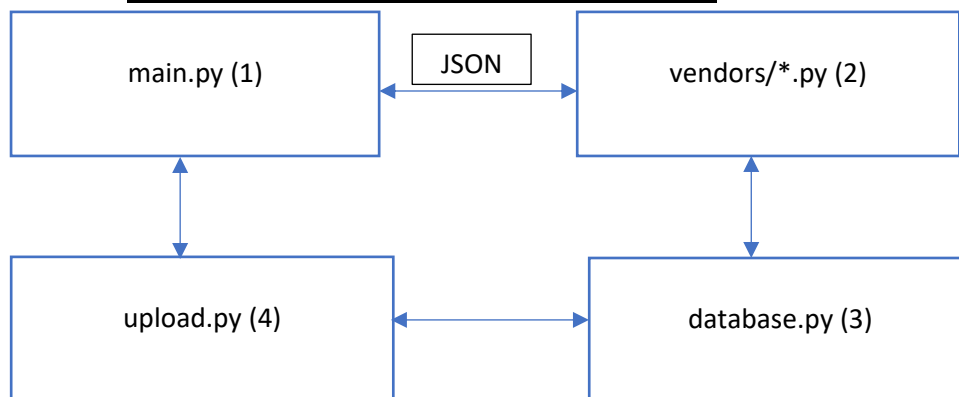
***(For Final-Release event only):***

### **User Documentation:**

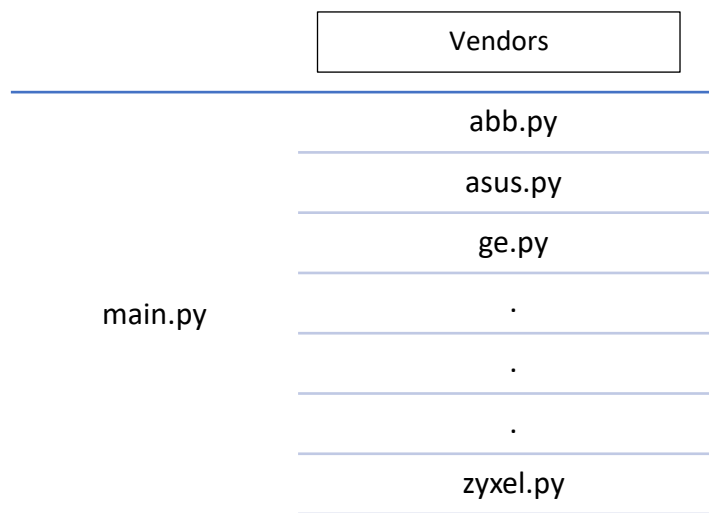
1. Download the code from <https://github.com/amosproj/amos2022ss01-firmware-downloader> page or a zip from <https://github.com/amosproj/amos2022ss01-firmware-downloader/archive/refs/heads/main.zip>
2. Unzip the folder into the local machine
3. Open using any IDE configured with Python
4. Install the dependable libraries from each module using `python -m pip install -r requirements.txt`
  - a. Pip install xxx (xxx is the module name). Example: `pip install selenium` or
  - b. `Python -m pip install xxx`
5. Install the chromium driver from and <https://chromedriver.chromium.org/downloads> and paste where the code is present (optional)

### **Software Architecture, code - design documentation:**

#### High Level Architecture with code:



The main.py has individual modules which will use multi-threading to run each vendor modules (2 processes at a time only).



Selenium Web driver/ BeautifulSoup is responsible for crawling each web in the main module

Vendor list:

<https://github.com/amosproj/amos2022ss01-firmware-downloader/blob/main/Documentation/Vendors%20to%20be%20investigated.pdf>

Sqlite3 is used for database configuration

- DB Config: <https://github.com/amosproj/amos2022ss01-firmware-downloader/blob/main/Documentation/Database%20Model.pdf>

- DB Architecture and Configuration:

	Table Name:	Data Base Field (Used in Python)	Acronym/ Description (with example)		
		FMDb	Firmware Database		
S.No	Columns:	Data Base Field (Used in Python)	Acronym/ Description (with example)	Data Base (As per SQLite3 Config) Data Type	Constraint
1	Manufacturer	Manufacturer	(e.g., Siemens, D-Link, AVM, ABB, ...) • Please refer to the link for all vendors needed for the project: Vendors (https://github.com/amosproj/amos2022ss01-firmware-downloader/blob/main/Documentation/Vendors%20to%20be%20investigated.pdf)	TEXT	NOT NULL
2	Model/Name	Modelname	(e.g., S7-1500, DIR300, Scalance-X, ...)	VARCHAR	NOT NULL
3	Version	Version	(e.g., 1.2.3)	TEXT	NOT NULL
4	Type	Type	(e.g., Router, Switch, Firewall, PLC, ...)	TEXT	NOT NULL
5	Release Date	Releasedate	If available from web scraper	TEXT	-
6	Checksum	Checksum	sha512	TEXT	-
7	EMBA tested	Embatested	yes/ no	TEXT	NOT NULL
8	EMBA link to report	Embalinktoreport	filesystem	TEXT	-
9	EMBARK link to report	Embarklinktoreport	(http://...)	TEXT	-
10	Firmware downloads link	Fwdownlink	vendor link	TEXT	NOT NULL
11	Firmware filesystem link	Fwfilelinktolocal	to find it on the filesystem	TEXT	NOT NULL
12	Firmware File ID	Fwfileid	Firmware filesystem unique index id for each new file added into DB or local file system (In future, to integrate with EMBA/ EMBark) -- uuid5 is based on the url of firmware (if url is not present uuid1 will be used)	VARCHAR	PRIMARY KEY
13	Additional Data	Fwadddata	Additional Data (e.g., all additional description about the product)	TEXT	-
14	Firmware filename	Fwfilename	The data crawled from Web page is stored in this field for additional data accompany	VARCHAR	NOT NULL
15	Firmware file size	Filesize	The Size of file in bytes and is fetched once it is downloaded in the system	TEXT	-
16	Firmware file last edit	Lasteditdate	The Last Edit time details is fetched once it is downloaded in the system	TEXT	-
17	Check for File upload in Embark	Uploadedonembark	Check for File upload in Embark	BOOLEAN	FALSE
18	Embark Unique File ID	Embarkfileid	Embark Unique File ID	VARCHAR	NULL
19	Status of Embark File	Startedanalysisonembark	Status of Embark File	BOOLEAN	FALSE
<b>Note:</b> The data is assumed to as per the information available and can be changed at any moment based on the changes needed in the Project database.py contains the functions for running/ usage of the database, main_database.py/test_database.py is used to test run the working of sqlite3 database					

- <https://github.com/amosproj/amos2022ss01-firmware-downloader/blob/main/Documentation/Data%20Base%20Config%2CSetup.png> or
- <https://github.com/amosproj/amos2022ss01-firmware-downloader/blob/main/Documentation/Data%20Base%20Config%2CSetup.xlsm>

- The detailed architecture can be viewed at <https://github.com/amosproj/amos2022ss01-firmware-downloader/blob/main/Documentation/Software%20Architecture.pdf>

## Build/ Deployment:

Please follow as listed above in User Documentation to run the code

### **Notes:**

- For detailed project information please go through the documents at <https://github.com/amosproj/amos2022ss01-firmware-downloader/tree/main/Project%20Description> and
- For documentation of project individual modules please go through <https://github.com/amosproj/amos2022ss01-firmware-downloader/tree/main/Documentation>

### **Final Build Expectations:**

- To integrate the entire code with EMBA and Embark services for full firmware download and scanning the images
- Please visit <https://github.com/e-m-b-a/emba> for EMBA and <https://github.com/e-m-b-a/embark> for EMBArk pages