Developer Guide for Project HDF5_BLS

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1 Introduction

This document serves as the developer guide for the modules of theHDF5_BLS project. It provides details about the approach to defining new functions and integrating them into the project to ensure code reusability and maintainability and allow an adaptation to new needs.

2 Module Structure

The project has the following structure:

```
HDF5_BLS.
|-- load_data
|-- wrapper
|-- treat
```

2.1 Key Components

- **load_data**: Allows the import of data from different formats.
- **wrapper**: Contains the Wrapper object that allows the manipulation of the data and its attributes.
- **treat**: Contains the treatment functions.

3 Importing new formats

To import a new format, you need to create a new function in the `load_data` module. This function should take the file path as input and return the data and its extracted attributes. The function should have the following structure:

```
def load_file_format(filepath):
    data = # Load data from the file
    attributes = # Extract attributes from the file
    return data, attributes
```

3.1 Data format

The format of the data should be a numpy array with the last dimension being the number of spectral channels. For example: a 2D raster scan with 200 x points and 100 y points acquired with a spectrometer with 512 spectral channels would be represented as a numpy array of shape (200, 100, 512).

3.2 Attributes format

The attributes is a dictionary. The name of the keys of the dictionnary should match the list given in the `spreadsheets/attributes_v01.xlsx` file. The values should be strings.

Additionnaly, it is possible to add new attributes to the data. To do so, you need to add a new key to the attributes dictionary with the following structure:

```
attributes['CATEGORY.Attribute'] = # Value of the new attribute
```

where `CATEGORY` is either `SPECTROMETER` (if its spectrometer related), `MEASURE` (if its measure related) or `FILEPROP` (if its file related), and `Attribute` is the name of the attribute. It is recommended to use the same name as the key in the spreadsheet, and update the spreadsheet with the new attribute. Additionnaly, we recommend to send a pull request to the repository to update the spreadsheet so as to normalize the naming convention in the community.

4 Contact

For questions or suggestions, please contact the maintainer at pierre.bouvet@meduniwien.ac.at.