E-BOA: Engine for Business Operation Analysis

Dynamic data modelling for business operation analysis

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Revision History

Revision	Date	Author(s)	Description
1.0	04.09.2018	DIBB	Document created
1.0	07.09.2018	DIBB	Added section for explaining the interface of the component
1.0	07.09.2018	DIBB	Added auto-generated code from the Python docstrings
1.0	11.09.2018	DIBB	Added more explanations for creating an ingestion processor
1.0	11.09.2018	DIBB	Added more explanations for creating an ingestion processor
1.0	11.09.2018	DIBB	Corrected documentation to reflect the new virtual machines created for the testing environment (centos and ubuntu)
1.0	11.09.2018	DIBB	Added section for explaining the generation of this documentation)
1.0	21.09.2018	DIBB	Added explanation for method insert_and_erase

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Chapter 1

Introduction

E-BOA is the component aimed to serve as data storage management for business operation analysis. The component aims to allow a dynamic data structure for reducing the effort of developing data models and managing the complex relations between data received.

All the information received is stored into the database using the following high-level entities:

- Explicit reference: identifier referring to an entity business-related
- Event: period of time associated to a gauge of a certain aspect business-related
- Annotation: particular aspect associated to an explicit reference
- Source: block of information received from the external interface/s to process. After the processing, the interesting information is extracted and stored inside the system.
- Alert: notification to users regarding anomalies identified by the system related to previous entities.
- Report: container of analysis.

Chapter 2

Purpose and scope

This component manages the storage of the data received following the next requirements:

- Traceability of all the data to the source of information (even information created within the infrastructure)
- No pre-configuration needed for inserting data
- Include modern datatypes for storing the data
- Flexible structure for linking information to events and annotations
- Flexible structure for linking events between them
- Flexible structure for linking explicit references between them
- Continuous developtment/Continuous integration approach
- Include geo-query functionalities
- Parallel insertion of data using the RDBMS parallelism mechanisms
- Quick access to the information by which it can be managed dynamically depending on the needs of the users

The scope of this component targets systems/tools with the need of storing time-tagged information. The data model used allows quick access to the information in a structured way.

Chapter 3

Ingestion modules code documentation

3.1 Subpackages

3.1.1 s2boa.ingestions package

Submodules

s2boa.ingestions.ingestion_ai.ingestion_ai module

Ingestion module for the REP_OPAI files of Sentinel-2

Written by DEIMOS Space S.L. (femd)

module eboa

`s2boa.ingestions.ingestion_ai.ingestion_ai.process_file`(*file_path*, *engine*, *query*, *reception_time*)

Function to process the file and insert its relevant information into the DDBB of the eboa

Parameters

- `file_path` (*str*) – path to the file to be processed
- `engine` (*Engine*) – Engine instance
- `query` (*Query*) – Query instance
- `reception_time` (*str*) – time of the reception of the file by the triggering

s2boa.ingestions.ingestion_dam.ingestion_dam module

Ingestion module for the REP_OPDAM files of Sentinel-2

Written by DEIMOS Space S.L. (femd)

module eboa

s2boa.ingestions.ingestion_dam.ingestion_dam.process_file(*file_path*, *engine*, *query*, *reception_time*)

Function to process the file and insert its relevant information into the DDBB of the eboa

Parameters

- `file_path` (*str*) – path to the file to be processed
- `engine` (*Engine*) – Engine instance
- `query` (*Query*) – Query instance
- `reception_time` (*str*) – time of the reception of the file by the triggering

s2boa.ingestions.ingestion_dfep_acquisition.ingestion_dfep_acquisition module

Ingestion module for the REP_PASS_2—5 files of Sentinel-2

Written by DEIMOS Space S.L. (dibb)

module eboa

s2boa.ingestions.ingestion_dfep_acquisition.ingestion_dfep_acquisition.process_file(*file en- gin que re- cep tio*

Function to process the file and insert its relevant information into the DDBB of the eboa

Parameters

- `file_path` (*str*) – path to the file to be processed
- `engine` (*Engine*) – Engine instance
- `query` (*Query*) – Query instance
- `reception_time` (*str*) – time of the reception of the file by the triggering

s2boa.ingestions.ingestion_dfep_schedule.ingestion_dfep_schedule module

Ingestion module for the DFEP schedule files of Sentinel-2

Written by DEIMOS Space S.L. (dibb)

module eboa

`s2boa.ingestions.ingestion_dfep_schedule.ingestion_dfep_schedule.process_file`(*file_path*, *engine*, *query*, *reception_time*)

Function to process the file and insert its relevant information into the DDBB of the eboa

Parameters

- `file_path` (*str*) – path to the file to be processed
- `engine` (*Engine*) – Engine instance
- `query` (*Query*) – Query instance
- `reception_time` (*str*) – time of the reception of the file by the triggering

s2boa.ingestions.ingestion_dhus.ingestion_dhus module

Ingestion module for the REP_OPDHUS files of Sentinel-2

Written by DEIMOS Space S.L. (femd)

module eboa

`s2boa.ingestions.ingestion_dhus.ingestion_dhus.process_file`(*file_path*, *engine*, *query*, *reception_time*)

Function to process the file and insert its relevant information into the DDBB of the eboa

Parameters

- `file_path` (*str*) – path to the file to be processed
- `engine` (*Engine*) – Engine instance
- `query` (*Query*) – Query instance
- `reception_time` (*str*) – time of the reception of the file by the triggering

s2boa.ingestions.ingestion_dpc.ingestion_dpc module

Ingestion module for the DPC files of Sentinel-2

Written by DEIMOS Space S.L. (femd)

module eboa

s2boa.ingestions.ingestion_dpc.ingestion_dpc.process_file(*file_path*, *engine*, *query*, *reception_time*, *wait_previous_levels=False*)

Function to process the file and insert its relevant information into the DDBB of the eboa

Parameters

- `file_path` (*str*) – path to the file to be processed
- `engine` (*Engine*) – Engine instance
- `query` (*Query*) – Query instance
- `reception_time` (*str*) – time of the reception of the file by the triggering

s2boa.ingestions.ingestion_edrs_acquisition.ingestion_edrs_acquisition module

Ingestion module for the REP_PASS_E_VGS files of Sentinel-2

Written by DEIMOS Space S.L. (dibb)

module eboa

s2boa.ingestions.ingestion_edrs_acquisition.ingestion_edrs_acquisition.process_file(*file*
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Function to process the file and insert its relevant information into the DDBB of the eboa

Parameters

- `file_path` (*str*) – path to the file to be processed
- `engine` (*Engine*) – Engine instance
- `query` (*Query*) – Query instance
- `reception_time` (*str*) – time of the reception of the file by the triggering

s2boa.ingestions.ingestion_lta.ingestion_lta module

Ingestion module for the REP_OPLTA files of Sentinel-2

Written by DEIMOS Space S.L. (femd)

module eboa

`s2boa.ingestions.ingestion_lta.ingestion_lta.process_file`(*file_path*, *engine*, *query*, *reception_time*)

Function to process the file and insert its relevant information into the DDBB of the eboa

Parameters

- `file_path` (*str*) – path to the file to be processed
- `engine` (*Engine*) – Engine instance
- `query` (*Query*) – Query instance
- `reception_time` (*str*) – time of the reception of the file by the triggering

s2boa.ingestions.ingestion_ltas.ingestion_ltas module

Ingestion module for the REP_OPLTAS files of Sentinel-2

Written by DEIMOS Space S.L. (femd)

module eboa

`s2boa.ingestions.ingestion_ltas.ingestion_ltas.process_file`(*file_path*, *engine*, *query*, *reception_time*)

Function to process the file and insert its relevant information into the DDBB of the eboa

Parameters

- `file_path` (*str*) – path to the file to be processed
- `engine` (*Engine*) – Engine instance
- `query` (*Query*) – Query instance
- `reception_time` (*str*) – time of the reception of the file by the triggering

s2boa.ingestions.ingestion_nppf.ingestion_nppf module

Ingestion module for the NPPF files of Sentinel-2

Written by DEIMOS Space S.L. (dibb)

module eboa

s2boa.ingestions.ingestion_nppf.ingestion_nppf.process_file(*file_path*, *engine*, *query*, *reception_time*)

Function to process the file and insert its relevant information into the DDBB of the eboa

Parameters

- `file_path` (*str*) – path to the file to be processed
- `engine` (*Engine*) – Engine instance
- `query` (*Query*) – Query instance
- `reception_time` (*str*) – time of the reception of the file by the triggering

s2boa.ingestions.ingestion_orbpre.ingestion_orbpre module

Ingestion module for the ORBPRE files of Sentinel-2

Written by DEIMOS Space S.L. (dibb)

module eboa

s2boa.ingestions.ingestion_orbpre.ingestion_orbpre.get_date_from_angle(*angle*, *orbital_period*, *ascending_node_time*)

s2boa.ingestions.ingestion_orbpre.ingestion_orbpre.process_file(*file_path*, *engine*, *query*, *reception_time*)

Function to process the file and insert its relevant information into the DDBB of the eboa

Parameters

- `file_path` (*str*) – path to the file to be processed
- `engine` (*Engine*) – Engine instance
- `query` (*Query*) – Query instance

- `reception_time` (*str*) – time of the reception of the file by the triggering

s2boa.ingestions.ingestion_rep_arc.ingestion_rep_arc module

Ingestion module for the REP_ARC files of Sentinel-2

Written by DEIMOS Space S.L. (femd)

module eboa

`s2boa.ingestions.ingestion_rep_arc.ingestion_rep_arc.process_file`(*file_path*, *engine*, *query*, *reception_time*)

Function to process the file and insert its relevant information into the DDBB of the eboa

Parameters

- `file_path` (*str*) – path to the file to be processed
- `engine` (*Engine*) – Engine instance
- `query` (*Query*) – Query instance
- `reception_time` (*str*) – time of the reception of the file by the triggering

s2boa.ingestions.ingestion_slot_request_edrs.ingestion_slot_request_edrs module

Ingestion module for the SRA (Slot request for unit A) files of Sentinel-2

Written by DEIMOS Space S.L. (dibb)

module eboa

`s2boa.ingestions.ingestion_slot_request_edrs.ingestion_slot_request_edrs.process_file`(*file_p*
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Function to process the file and insert its relevant information into the DDBB of the eboa

Parameters

- `file_path` (*str*) – path to the file to be processed
- `engine` (*Engine*) – Engine instance
- `query` (*Query*) – Query instance

- `reception_time` (*str*) – time of the reception of the file by the triggering

s2boa.ingestions.ingestion_station_acquisition_report.ingestion_station_acquisition_report module

Ingestion module for the Station Acquisition Report files

Written by DEIMOS Space S.L. (femd)

module eboa

`s2boa.ingestions.ingestion_station_acquisition_report.ingestion_station_acquisition_rep`

Function to process the file and insert its relevant information into the DDBB of the eboa

Parameters

- `file_path` (*str*) – path to the file to be processed
- `engine` (*Engine*) – Engine instance
- `query` (*Query*) – Query instance
- `reception_time` (*str*) – time of the reception of the file by the triggering

s2boa.ingestions.ingestion_station_schedule.ingestion_station_schedule module

Ingestion module for the Station schedule files of Sentinel-2

Written by DEIMOS Space S.L. (dibb)

module eboa

`s2boa.ingestions.ingestion_station_schedule.ingestion_station_schedule.process_file(`*file en- gin que re- cep tio*

Function to process the file and insert its relevant information into the DDBB of the eboa

Parameters

- `file_path` (*str*) – path to the file to be processed

- `engine` (*Engine*) – Engine instance
- `query` (*Query*) – Query instance
- `reception_time` (*str*) – time of the reception of the file by the triggering

Module contents

Chapter 4

View modules code documentation

4.1 Subpackages

4.1.1 s2vboa.views package

Submodules

s2vboa.views.acquisition module

Acquistion view for s2boa

Written by DEIMOS Space S.L. (dibb)

module s2vboa

`s2vboa.views.acquisition.define_what_to_show_acquisition(`*show*`)`

`s2vboa.views.acquisition.query_acquisition_and_render(`*start_filter=None*, *stop_filter=None*, *mission=None*, *show=None*, *sliding_window=None*, *filters=None*, *corrected_planned_playback_uuid=None*`)`

`s2vboa.views.acquisition.query_acquisition_events(`*start_filter=None*, *stop_filter=None*, *mission=None*, *filters=None*, *corrected_planned_playback_uuid=None*`)`

Query planned acquisition events.

`s2vboa.views.acquisition.query_acquisition_pages()`

Acquisition view for the Sentinel-2 mission using pages.

`s2vboa.views.acquisition.show_acquisition()`

Acquisition view for the Sentinel-2 mission.

s2vboa.views.acquisition.show_sliding_acquisition()
Acquisition sliding view for the Sentinel-2 mission.

s2vboa.views.acquisition.show_sliding_acquisition_parameters()
Acquisition sliding view for the Sentinel-2 mission.

s2vboa.views.acquisition.show_specific_acquisition(*corrected_planned_playback_uuid*)
Specific acquisition view for one playback related to the Sentinel-2 mission.

s2vboa.views.planning module

Planning view definition

Written by DEIMOS Space S.L. (dibb)

module s2vboa

s2vboa.views.planning.define_what_to_show_planning(*show*)

s2vboa.views.planning.query_planning_and_render(*start_filter=None*, *stop_filter=None*, *mission=None*, *show=None*, *sliding_window=None*, *filters=None*)

s2vboa.views.planning.query_planning_events(*start_filter=None*, *stop_filter=None*, *mission=None*, *filters=None*)
Query planning events.

s2vboa.views.planning.query_planning_pages()
Planning view for the Sentinel-2 mission using pages.

s2vboa.views.planning.show_planning()
Planning view for the Sentinel-2 mission.

s2vboa.views.planning.show_sliding_planning()
Planning view for the Sentinel-2 mission.

s2vboa.views.planning.show_sliding_planning_parameters()
Planning view for the Sentinel-2 mission.

s2vboa.views.functions module

Views functions definition

Written by DEIMOS Space S.L. (dibb)

module s2vboa

s2vboa.views.functions.get_start_stop_filters(*query*, *current_app*, *request*, *window_size*, *mission*, *filters*)

s2vboa.views.functions.query_orbpre_events(*query*, *current_app*, *start_filter=None*, *stop_filter=None*, *mission=None*, *limit=None*, *offset=None*, *descending=False*)

Query predicted orbit events.

Module contents

Acronyms

E-BOA Engine for Business Operation Analysis. 1

RDBMS Relational Database Management System. 3