sqla-filter Documentation

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Marc-Aurele Coste

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Contents:

Warning: This project is not ready for production so use it carefully because it's not stable.

CHAPTER 1

Introduction

The purpose of this library is to provide a simple way to filter queries generated with Sqlalchemy. To filter a query a tree is generated. When the filter function is called the tree is traversed (DFS) and the filter function of each sub node is called until all nodes are scanned.

The default format for the tree generation is the `JSON` format. It's included in the package.

Other formats will be supported in the future. You can also create your own parser to generate the three from the format you want (*here*).

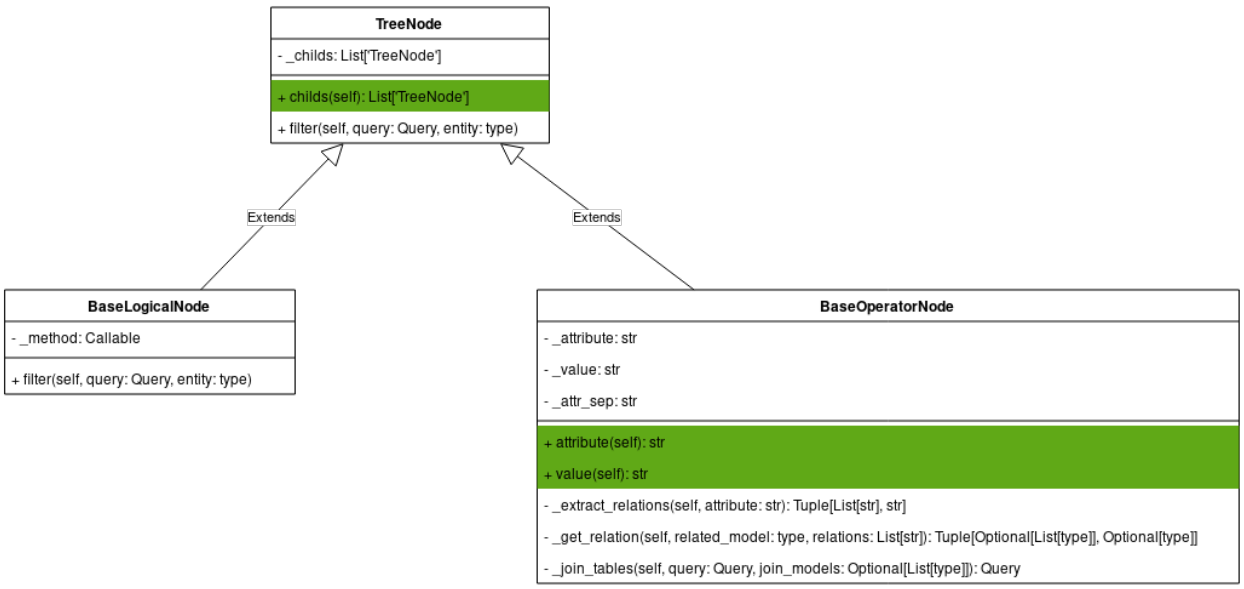
CHAPTER 2

Guide

2.1 User Guide

2.1.1 sqla-filters: Nodes

Base nodes



Tree

class sqla_filters.nodes.base.**TreeNode**
Abstract base class for every nodes.

This class

childs
Property that return the node childs list.

Returns The node childs list.

Return type List[*TreeNode*]

filter(*query: sqlalchemy.orm.query.Query*, *entity: type*) → Tuple[sqlalchemy.orm.query.Query, Any]
Define the filter function that every node must to implement.

Parameters

- **query** (*Query*) – The sqlalchemy query.
- **entity** (*type*) – The entity model.

Returns The filtered query.

Return type Tuple[Query, Any]

Base logical

class sqla_filters.nodes.base.**BaseLogicalNode**(**args*, *method=<function default_method>*, ***kwargs*)

filter(*query: sqlalchemy.orm.query.Query*, *entity: type*) → Tuple[sqlalchemy.orm.query.Query, Any]
Apply the *_method* to all childs of the node.

Parameters

- **query** (*Query*) – The sqlachemy query.
- **entity** (*type*) – The entity model of the query.

Returns A tuple with in first place the updated query and in second place the list of filters to apply to the query.

Return type Tuple[Query, Any]

Base operational

class sqla_filters.nodes.base.**BaseOperationalNode**(*attribute: str*, *value: Any*, *attr_sep: str = '.'*)

_extract_relations(*attribute: str*) → Tuple[List[str], str]
Split and return the list of relation(s) and the attribute.

Parameters **attribute** (*str*) –

Returns A tuple where the first element is the list of related entities and the second is the attribute.

Return type Tuple[List[str], str]

_get_relation(*related_model: type*, *relations: List[str]*) → Tuple[Optional[List[type]], Optional[type]]
Transform the list of relation to list of class.

Parameters

- **related_mode** (*type*) – The model of the query.

- **relations** (*List[str]*) – The relation list get from the *_extract_relations*.

Returns Tuple with the list of relations (class) and the second element is the last relation class.

Return type Tuple[Optional[List[type]], Optional[type]]

_join_tables(*query: sqlalchemy.orm.query.Query, join_models: Optional[List[type]]*) → sqlalchemy.orm.query.Query

Method to make the join when relation is found.

Parameters

- **query** (*Query*) – The sqlalchemy query.
- **join_models** (*Optional[List[type]]*) – The list of joined models get from the method *_get_relation*.

Returns The new Query with the joined tables.

Return type Query

attribute

Property that return the model attribute.

Returns The model attribute.

Return type str

filter(*query: sqlalchemy.orm.query.Query*, *entity: type*) → Tuple[sqlalchemy.orm.query.Query, Any]

Add a filters to the list of filters to apply.

> **Warning:** This method must be override in childs nodes.

Parameters

- **query** (*Query*) – The sqlachemy query.
- **entity** (*type*) – The entity model of the query.

Returns A tuple with in first place the updated query and in second place the list of filters to apply to the query.

Return type Tuple[Query, Any]

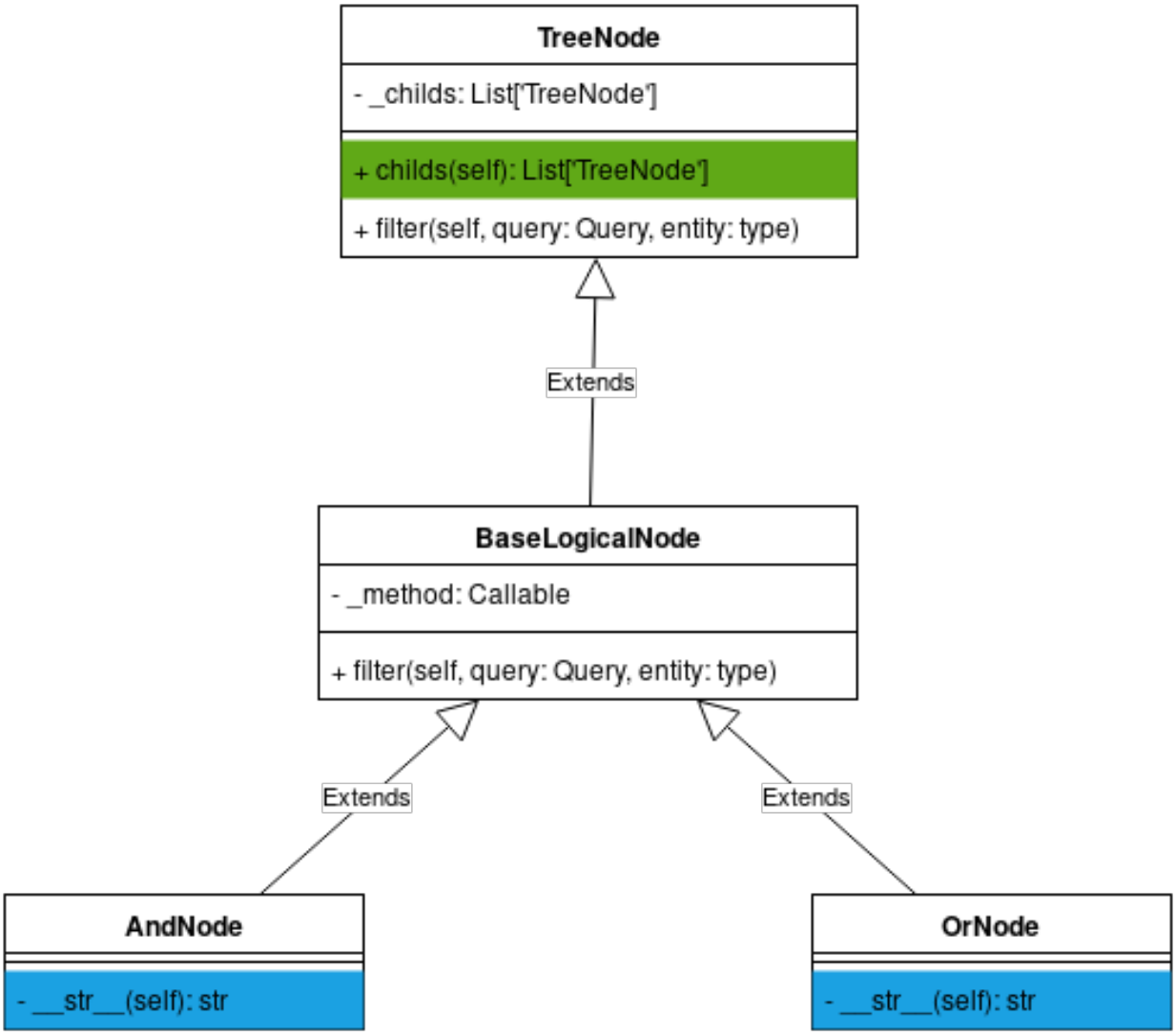
value

Property that return the value of the model attribute.

Returns The value of the model attribute.

Return type Any

Logical nodes



And

class sqla_filters.nodes.logical.**AndNode**

Represent the `and` operation from sqlalchemy.

When the filter method is called on this node it run on all of it's childs to create the filters list and apply the `and_` function to this list.

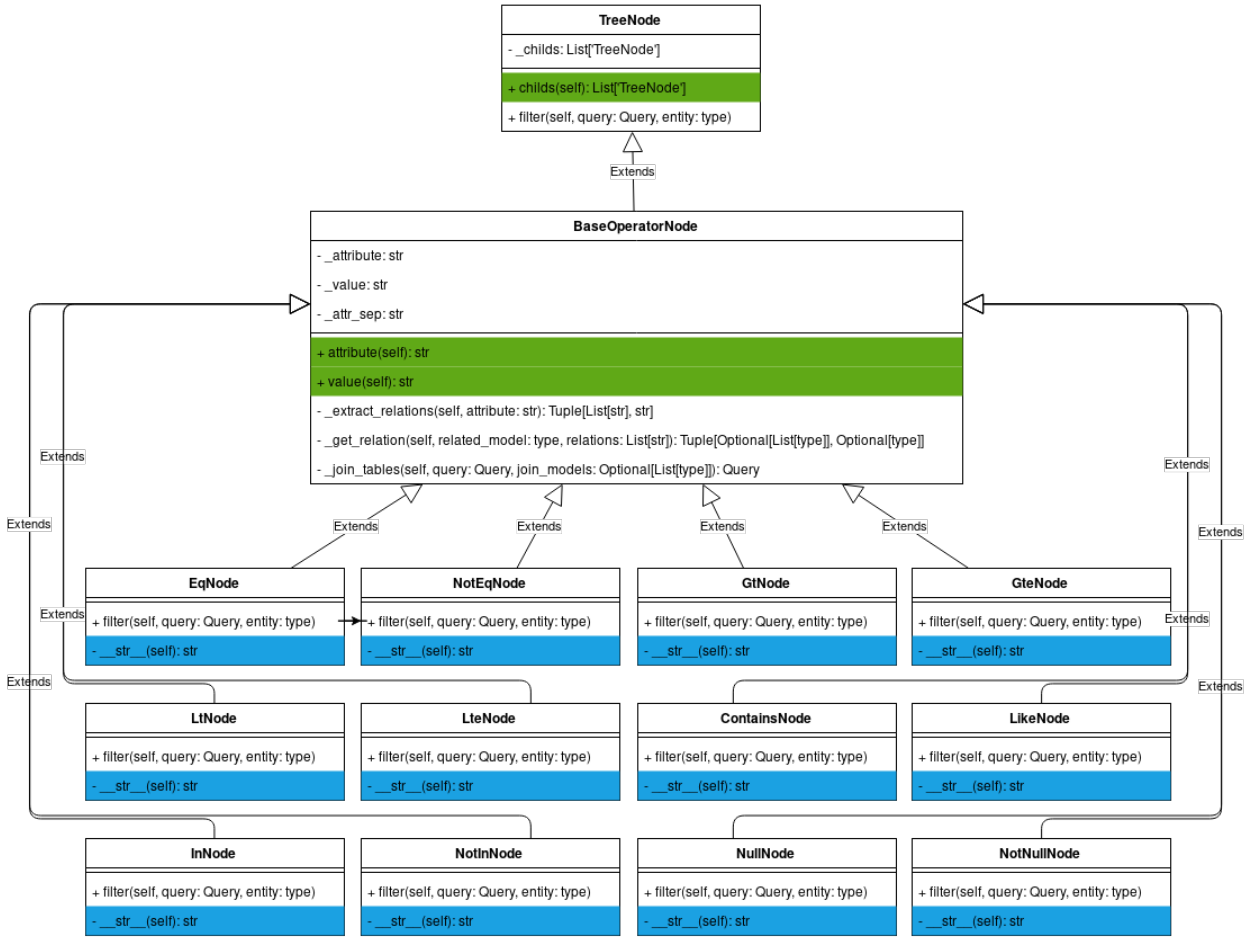
Or

class sqla_filters.nodes.logical.**OrNode**

Represent the `or` operation from sqlalchemy.

When the filter method is called on this node it run on all of it's childs to create the filters list and apply the `or_` function to this list.

Operational nodes



Equality

class sqla_filters.nodes.operational.**EqNode**(*attribute: str*, *value: Any*, *attr_sep: str = '.'*)

EqNode class.

This node test the equality between two values. Internally it use the *operators.eq* function available in *sqlalchemy.sql.operators*.

class sqla_filters.nodes.operational.**NotEqNode**(*attribute: str*, *value: Any*, *attr_sep: str = '.'*)

NotEqNode class.

This node test the non equality between two values. Internally it use the *operators.ne* function available in *sqlalchemy.sql.operators*.

Greater / Greater equal

class sqla_filters.nodes.operational.**GtNode**(*attribute: str*, *value: Any*, *attr_sep: str = '.'*)

GtNode class.

This node test if a value is greater than another one. Internally it use the *operators.gt* function available in *sqlalchemy.sql.operators*.

class sqla_filters.nodes.operational.**GteNode**(*attribute: str*, *value: Any*, *attr_sep: str = '.'*)

GteNode class.

This node test if a value is greater or equal to another one. Internally it use the *operators.ge* function available in *sqlalchemy.sql.operators*.

Lower / Lower equal

class sqla_filters.nodes.operational.**LtNode**(*attribute: str*, *value: Any*, *attr_sep: str = '.'*)

LtNode class.

This node test if a value is lower than another one. Internally it use the *operators.lt* function available in *sqlalchemy.sql.operators*.

class sqla_filters.nodes.operational.**LteNode**(*attribute: str*, *value: Any*, *attr_sep: str = '.'*)

LteNode class.

This node test if a value is lower or equal to another one. Internally it use the *operators.le* function available in *sqlalchemy.sql.operators*.

Contains

class sqla_filters.nodes.operational.**ContainsNode**(*attribute: str*, *value: Any*, *attr_sep: str = '.'*)

ContainsNode class.

This node test if an attribut contains the value. Internally it use the *operators.contains* function available in *sqlalchemy.sql.operators*.

Like

class sqla_filters.nodes.operational.**LikeNode**(*attribute: str*, *value: Any*, *attr_sep: str = '.'*)

ContainsNode class.

This node test if an attribut is like the value. This function have the behavior of the *LIKE* in the sql language. This node use the attr.like function of a model attribute.

In

class sqla_filters.nodes.operational.**InNode**(*attribute: str*, *value: Any*, *attr_sep: str = '.'*)

InNode class.

This node test if an attribut is in a list of values. This function have the behavior of the *in* in the sql language. This node use the attr.in function of a model attribute.

class sqla_filters.nodes.operational.**NotInNode**(*attribute: str*, *value: Any*, *attr_sep: str = '.'*)

NotInNode class.

This node test if an attribut is not in a list of values. This function have the behavior of the *not in* in the sql language. This node use the ~attr.in_ function of a model attribute.

Null

class sqla_filters.nodes.operational.**InNode**(*attribute: str*, *value: Any*, *attr_sep: str = '.'*)
InNode class.

This node test if an attribut is in a list of values. This function have the behavior of the *in* in the sql language. This node use the attr.in function of a model attribute.

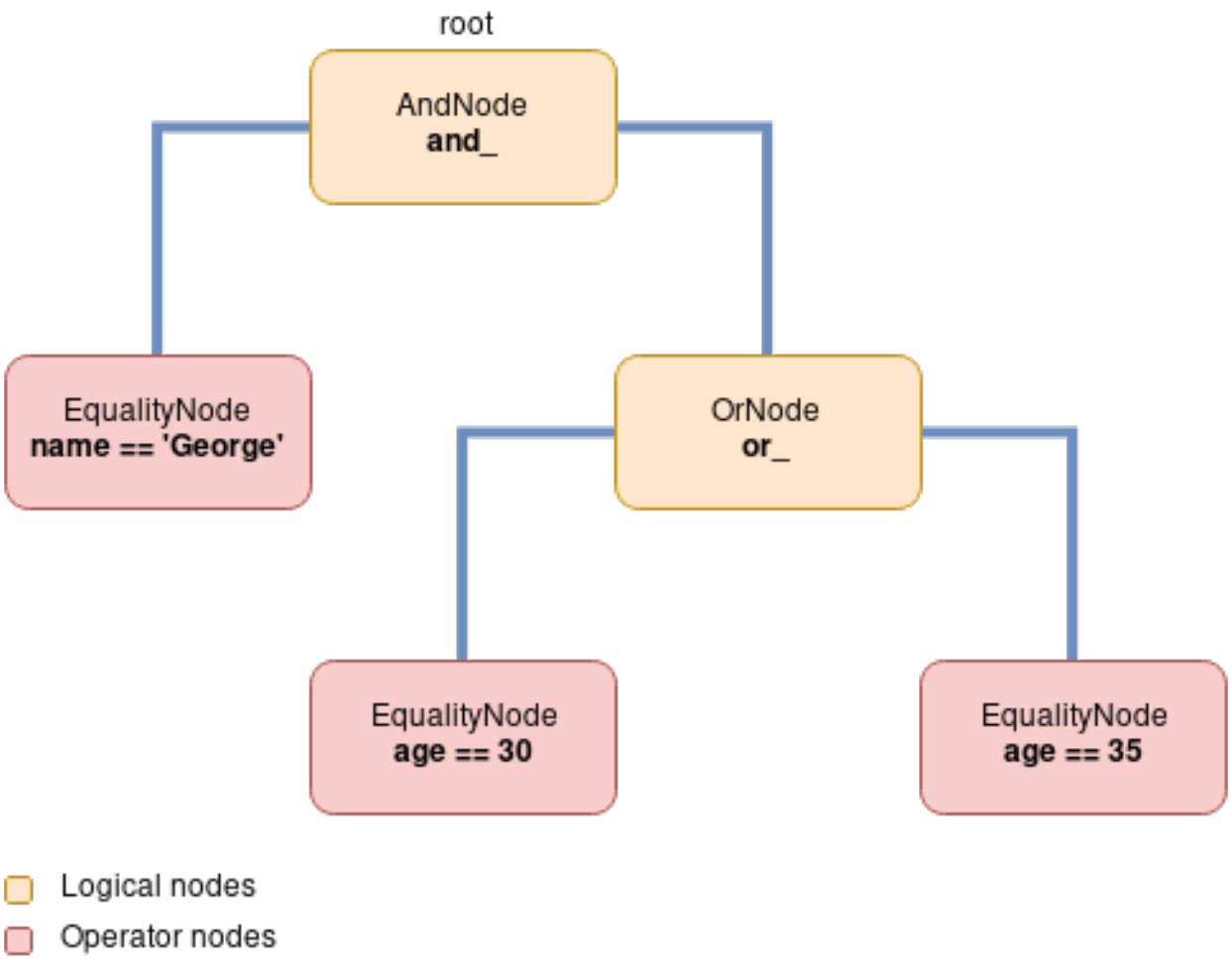
class sqla_filters.nodes.operational.**NotInNode**(*attribute: str*, *value: Any*, *attr_sep: str = '.'*)
NotInNode class.

This node test if an attribut is not in a list of values. This function have the behavior of the *not in* in the sql language. This node use the ~attr.in_ function of a model attribute.

2.1.2 sqla-filters: Tree

Once the parser parses the data that was given it creates a tree. This tree is composed of the nodes found in the package `sqla_filter.filter.nodes`.

The generated tree is of the following form:



The class that contains this tree is the next class:

class sqla_filters.tree.**SqlaFilterTree**(*root: sqla_filters.nodes.base.base.TreeNode*)

Class SqlaFilterTree.

When you acces the parser.tree an instance of the class is returned. From the class you can access the root element and filter a sqlalchemy query.

Note: This is from this class you can call the filter function.

2.2 Developer Guide

2.2.1 sqla-filters: Plugins

Create your own plugin parser

You can of course create your own parser. Because you probably use a format that's specific to your usage you can create a parser to manage this new format.

Two posibilities are offered to you:

1. **Namespace package**
2. **Standalone package**

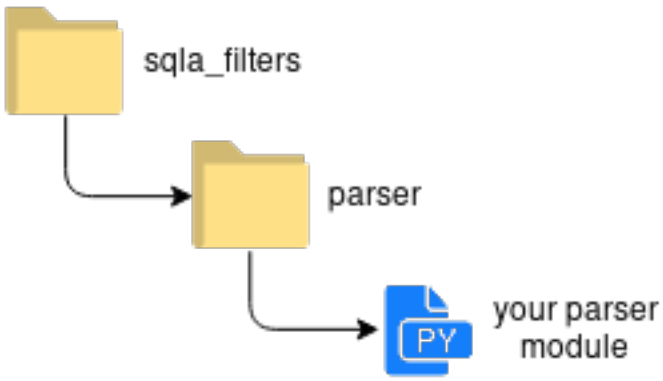
Namespace package

You can create a namespace package that injects the package code into the namespace "sqla_filter.parser ". This makes it possible to have a better logic in the e.g.

```
from sqla_filter.parser.<your module>import <your parser>
```

The creation of namespace package is as easy as a standalone package. You just need to respect some conventions.

You must to have the folowing directory structure:



If you want more information about the namespace packages you can read the documentation packaging-namespace-packages.

You can also get more informations in the pep420 that's the chosen method for the sqla-filters project.

Standalone package

You can create a "standalone " package as you normally do. The only thing that change compared to the namespace package will be the include.

CHAPTER 3

Indices and tables

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