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# **sqlalchemy-things**

***Release 0.10.2***

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Utility collection for development with [SQLAlchemy 1.4 / 2.0](#) ORM.



## INSTALLATION

Installing sqlalchemy-things with pip:

```
pip install sqlalchemy-things
```

### 1.1 Optional requirements

For PostgreSQL support, you also need install asyncpg:

```
pip install asyncpg
```

For MySQL support, you also need install aiomysql:

```
pip install aiomysql
```

For SQLite3 support, you also need install aiosqlite:

```
pip install aiosqlite
```





## EXAMPLES

## 2.1 Single table inheritance

```
from sqlalchemy_things.declarative import (
    IntegerPrimaryKeyMixin,
    PolymorphicMixin,
)

metadata = sa.MetaData()
Base = orm.declarative_base(metadata=metadata)

class Parent(Base, IntegerPrimaryKeyMixin, PolymorphicMixin):
    __tablename__ = 'single_table'

class ChildA(Parent):
    __mapper_args__ = {'polymorphic_identity': 'child_a'}
    some_field = sa.Column(sa.String(255))

class ChildB(Parent):
    __mapper_args__ = {'polymorphic_identity': 'child_b'}
    other_field = sa.Column(sa.String(127))
```

## 2.2 Joined table inheritance with cascade primary key mixins

```
from sqlalchemy_things.declarative import (
    CascadeIntegerPrimaryKeyMixin,
    PolymorphicMixin,
)

metadata = sa.MetaData()
Base = orm.declarative_base(metadata=metadata)

class Parent(Base, CascadeIntegerPrimaryKeyMixin, PolymorphicMixin):
    __tablename__ = 'cascade_pk_parent_table'
```

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```
class ChildA(Parent):
    __tablename__ = 'cascade_pk_child_table_a'
    __mapper_args__ = {'polymorphic_identity': 'child_a'}
    field = sa.Column(sa.String(255))

class ChildB(Parent):
    __tablename__ = 'cascade_pk_child_table_b'
    __mapper_args__ = {'polymorphic_identity': 'child_b'}
    field = sa.Column(sa.String(127))
```

## 2.3 Joined table inheritance with simple primary key mixins

```
from sqlalchemy_things.declarative import (
    IntegerPrimaryMixin,
    ParentPrimaryMixin,
    PolymorphicMixin,
)

metadata = sa.MetaData()
Base = orm.declarative_base(metadata=metadata)

class Parent(Base, IntegerPrimaryMixin, PolymorphicMixin):
    __tablename__ = 'inherited_pk_parent_table'

class ChildA(ParentPrimaryMixin, Parent):
    __tablename__ = 'inherited_pk_child_table_a'
    __mapper_args__ = {'polymorphic_identity': 'child_a'}
    field = sa.Column(sa.String(255))

class ChildB(ParentPrimaryMixin, Parent):
    __tablename__ = 'inherited_pk_child_table_b'
    __mapper_args__ = {'polymorphic_identity': 'child_b'}
    field = sa.Column(sa.String(127))
```

## 3.1 Custom column types

**class** sqlalchemy\_things.column\_types.UUIDType(\*args, \*\*kwargs)  
Bases: sqlalchemy.sql.type\_api.TypeDecorator  
Backend-agnostic UUID type.

## 3.2 Mixins for single and joined inheritance

**class** sqlalchemy\_things.declarative.PolymorphicMixin  
Bases: sqlalchemy\_things.declarative.base.DeclarativeMixin  
Polymorphic mixin for single table and joined table inheritance.

## 3.3 Primary key mixins for single and joined table inheritance

**class** sqlalchemy\_things.declarative.BigIntegerPrimaryKeyMixin  
Bases: sqlalchemy\_things.declarative.base.DeclarativeMixin  
Big integer primary key mixin.

**Warning:** SQLite backend not support autoincrement for BigInteger column type.

**class** sqlalchemy\_things.declarative.DateTimePrimaryKeyMixin  
Bases: sqlalchemy\_things.declarative.base.DeclarativeMixin  
Datetime primary key mixin.

**class** sqlalchemy\_things.declarative.IntegerPrimaryKeyMixin  
Bases: sqlalchemy\_things.declarative.base.DeclarativeMixin  
Integer primary key mixin.

**class** sqlalchemy\_things.declarative.UUIDPrimaryKeyMixin  
Bases: sqlalchemy\_things.declarative.base.DeclarativeMixin  
UUID primary key mixin.

## 3.4 Primary key mixins for joined table inheritance

**class** sqlalchemy\_things.declarative.CascadeBigIntegerPrimaryKeyMixin  
Bases: sqlalchemy\_things.declarative.base.InheritedDeclarativeMixin  
Cascade big integer primary key mixin for joined table inheritance.

**Warning:** SQLite backend not support autoincrement for BigInteger column type.

**class** sqlalchemy\_things.declarative.CascadeDateTimePrimaryKeyMixin  
Bases: sqlalchemy\_things.declarative.base.InheritedDeclarativeMixin  
Cascade datetime primary key mixin for joined table inheritance.

**class** sqlalchemy\_things.declarative.CascadeIntegerPrimaryKeyMixin  
Bases: sqlalchemy\_things.declarative.base.InheritedDeclarativeMixin  
Cascade integer primary key mixin for joined table inheritance.

**class** sqlalchemy\_things.declarative.CascadeUUIDPrimaryKeyMixin  
Bases: sqlalchemy\_things.declarative.base.InheritedDeclarativeMixin  
Cascade UUID primary key mixin for joined table inheritance.

**class** sqlalchemy\_things.declarative.ParentPrimaryKeyMixin  
Bases: sqlalchemy\_things.declarative.base.InheritedDeclarativeMixin  
Parent primary key mixin for child class in joined table inheritance without cascade primary key mixin.

**Warning:** This mixin must precede the parent class when declaring a child class.

## 3.5 Pagination

**class** sqlalchemy\_things.pagination.OffsetPage(*items: List[Any], number: int, page\_size: int, total: int*)  
Bases: object

**class** sqlalchemy\_things.pagination.OffsetPaginator(*page\_size: int = 20, max\_page: Optional[int] = None*)  
Bases: object

## 3.6 Utils for single and joined inheritance

sqlalchemy\_things.declarative.get\_inherited\_column(*cls: Any, name: str, default: sqlalchemy.sql.schema.Column*) →  
Optional[sqlalchemy.sql.schema.Column]

Utility function for column inheriting in mixins.

### Parameters

- **name** – column name of parent class;
- **default** – default value if not found in parent class.

`sqlalchemy_things.declarative.get_inherited_primary_key(cls: Any) →`  
Optional[sqlalchemy.sql.schema.Column]  
Utility function for creating child primary key in joined table inheritance.



## RELEASES

### 4.1 Version 0.10.0

#### Added

- Handling `number < 1` for `pagination.OffsetPaginator.get_page_async()` and `pagination.OffsetPaginator.get_page_sync`.

#### Changed

- renamed `page_number` to `number` for pagination classes;
- renamed `total_items` to `total` for pagination classes.

### 4.2 Version 0.9.0

#### Changed

- `ValueError` exception replaced with `return None` when exceeding the `max_page` in `pagination.OffsetPage`.

### 4.3 Version 0.8.0

#### Added

- `pagination.OffsetPage`.

#### Changed

- Renamed `prepare_page_async()` method to `get_page_async()` in `pagination.OffsetPaginator`;
- Renamed `prepare_page_sync()` method to `get_page_sync()` in `pagination.OffsetPaginator`.

#### Removed

- `get_items()` method from `pagination.OffsetPaginator`;
- `get_last_page_number()` method from `pagination.OffsetPaginator`;
- `get_next_page_number()` method from `pagination.OffsetPaginator`;
- `get_previous_page_number()` method from `pagination.OffsetPaginator`.

## 4.4 Version 0.7.0

### Added

- `get_items()` method for `pagination.OffsetPaginator`;
- `get_last_page_number()` method for `pagination.OffsetPaginator`;
- `get_next_page_number()` method for `pagination.OffsetPaginator`;
- `get_previous_page_number()` method for `pagination.OffsetPaginator`.

### Changed

- Renamed `get_page_async` method to `prepare_page_async` in `pagination.OffsetPaginator`;
- Renamed `get_page_sync` method to `prepare_page_sync` in `pagination.OffsetPaginator`.

### Removed

- `pagination.OffsetPage`.

## 4.5 Version 0.6.0

### Added

- `max_page` attribute for `pagination.OffsetPaginator`.

### Changed

- Renamed `next` attribute to `next_number` in `pagination.OffsetPage`;
- Renamed `previous` attribute to `previous_number` in `pagination.OffsetPage`;
- Renamed `limit` attribute to `page_size` in `pagination.OffsetPaginator`.

## 4.6 Version 0.5.0

### Changed

- Renamed `pagination.CountOffsetPage` to `pagination.OffsetPage`;
- Renamed `pagination.CountOffsetPaginator` to `pagination.OffsetPaginator`;
- Renamed `get_async` method to `get_page_async` in `pagination.OffsetPaginator`;
- Renamed `get_sync` method to `get_page_sync` in `pagination.OffsetPaginator`.

## 4.7 Version 0.4.0

### Added

- `pagination.CountOffsetPage`;
- `pagination.CountOffsetPaginator`.



## 4.8 Version 0.3.0

### Changed

- Rename `definition` attribute to `discriminator` in `declarative.PolymorphicMixin`.

## 4.9 Version 0.2.0

### Changed

- Rename *key* arg to *name* in `declarative.get_inherited_column()`.

## 4.10 Version 0.1.0

### Changed

- Rename `CascadeDeclarativeMixin` to `InheritedDeclarativeMixin`;
- Rename `InheritedPrimaryKeyMixin` to `ParentPrimaryKeyMixin`;
- Move `ParentPrimaryKeyMixin` from `declarative.base` to `declarative.primary_keys`;
- Move `get_inherited_primary_key` from `declarative.base` to `declarative.primary_keys`.



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