django-elasticsearch-dsl-drf Documentation

Release 0.22.1

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Integrate Elasticsearch DSL with Django REST framework in the shortest way possible, with least efforts possible.

Package provides views, serializers, filter backends, pagination and other handy add-ons.

You are expected to use django-elasticsearch-dsl for defining your Elasticsearch documents.

CHAPTER 1

Documentation

Documentation is available on Read the Docs.

Make sure to read FAQ.

CHAPTER 2

Prerequisites

- Django 2.2, 3.0 and 3.1.
- Python 3.6, 3.7, 3.8 and 3.9.
- Elasticsearch 6.x, 7.x. For older versions use `django-elasticsearch-dsl-drf` version 0.18.

CHAPTER 3

Main features and highlights

- *Dynamic serializer for Documents*.
- *Search filter backend*.
- *Ordering filter backend*.
- *Filtering filter backend* (big variety of native- and functional- query lookups, such as `gt`, `gte`, `lt`, `lte`, `endswith`, `contains`, `wildcard`, `exists`, `exclude`, `isnull`, `range`, `in`, `prefix` (same as `startswith`), `term` and `terms` is implemented.
- *Geo-spatial filtering filter backend* (the following filters implemented: `geo_distance`, `geo_polygon` and `geo_bounding_box`).
- *Geo-spatial ordering filter backend* (the following filters implemented: `geo_distance`).
- *Faceted search filter backend*.
- *Post-filter filter backend*.
- *Nested filtering filter backend*.
- *Highlight backend*.
- *Suggester filter backend*.
- *Functional suggester filter backend*.
- *Pagination (Page number and limit/offset pagination)*.
- *Ids filter backend*.
- *Multi match search filter backend*.
- *Simple search query search filter backend*.
- *More-like-this support (detail action)*.
- *Global aggregations support*.
- *Source filter backend*.

Do you need a similar tool for GraphQL? Check graphene-elastic.

CHAPTER 4

Demos

4.1 Online demo

Check the live demo app (Django 3.1 + Django REST Framework 3.12 + Elasticsearch 7.5) hosted on Heroku and bonsai.io.

4.2 Local demo

A frontend demo (React based) is available. See the dedicated docs for more information.

To bootstrap evaluation, clone the repository locally and run *docker-compose*.

```
docker-compose up
```

It will set up:

- Elasticsearch on http://localhost:9200
- Django REST framework on http://localhost:8000
- React on http://localhost:3000

CHAPTER 5

Installation

(1) Install latest stable version from PyPI:

```
pip install django-elasticsearch-dsl-drf
```

or latest stable version from GitHub:

```
pip install https://github.com/barseghyanartur/django-elasticsearch-dsl-drf/
↪archive/stable.tar.gz
```

(2) Add `rest_framework`, `django_elasticsearch_dsl` and `django_elasticsearch_dsl_drf` to `INSTALLED_APPS`:

```
INSTALLED_APPS = (
    # ...
    # REST framework
    'rest_framework',

    # Django Elasticsearch integration
    'django_elasticsearch_dsl',

    # Django REST framework Elasticsearch integration (this package)
    'django_elasticsearch_dsl_drf',
    # ...
)
```

CHAPTER 6

Quick start

Perhaps the easiest way to get acquainted with `django-elasticsearch-dsl-drf` is to read the *quick start tutorial*.

See it as a guide of diving into integration of Elasticsearch with Django with very low knowledge entry level.

CHAPTER 7

Testing

Project is covered with tests.

To test with all supported Python/Django versions type:

```
tox
```

To test against specific environment, type:

```
tox -e py38-django30
```

To test just your working environment type:

```
./runtests.py
```

To run a single test in your working environment type:

```
./runtests.py src/django_elasticsearch_dsl_drf/tests/test_filtering.py
```

Or:

```
./manage.py test django_elasticsearch_dsl_drf.tests.test_ordering
```

To run a single test class in a given test module in your working environment type:

```
./runtests.py src/django_elasticsearch_dsl_drf/tests/test_suggesters.
↪py::TestSuggesters
```

It's assumed that you have all the requirements installed. If not, first install the test requirements:

```
pip install -r examples/requirements/test.txt
```

CHAPTER 8

Writing documentation

Keep the following hierarchy.

```
=====
title
=====

header
======

sub-header
----------

sub-sub-header
~~~~~~~~~~~~~~

sub-sub-sub-header
^^^^^^^^^^^^^^^^^^

sub-sub-sub-sub-header
++++++++++++++++++++++

sub-sub-sub-sub-sub-header
**************************
```

CHAPTER 9

License

GPL-2.0-only OR LGPL-2.1-or-later

CHAPTER 10

Support

For any issues contact me at the e-mail given in the *Author* section.

CHAPTER 11

Author

Artur Barseghyan <artur.barseghyan@gmail.com>

CHAPTER 12

Project documentation

Contents:

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  - *Prerequisites*
  - *Main features and highlights*
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  - *Testing*
  - *Writing documentation*
  - *License*
  - *Support*
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  - *Project documentation*
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12.1 Dependencies

elasticsearch and elasticsearch-dsl

Depending on your `Elasticsearch` version (either 2.x, 5.x, 6.x or 7.x) you should use 2.x, 5.x, 6.x or 7.x versions of the `elasticsearch` and `elasticsearch-dsl` packages accordingly.

Current compatibility matrix is:

This package	Elasticsearch
0.18.x	2.x, 5.x, 6.x
0.19.x	6.x
0.20.x	6.x, 7.x

django-elasticsearch-dsl

You are advised to use the latest version of django-elasticsearch-dsl.

The following versions have been tested and work well together:

elasticsearch	elasticsearch-dsl	django-elasticsearch-dsl
2.4.1	2.2.0	0.5.1
5.4.0	5.3.0	0.5.1
6.3.0	6.1.0	0.5.1
6.3.0	6.4.0	6.4.2
7.0.2	7.0.0	7.0.0

As of `django-elasticsearch-dsl-drf` 0.19, support for Elasticsearch versions prior 6.x has been dropped.

Django/ Django REST Framework

Initial version of this package was written for djangorestframework 3.6.2.

Starting from `django-elasticsearch-dsl-drf` version 0.18, support for `Django` versions prior 1.11 and `Django REST Framework` versions prior 3.9 has been dropped.

Current compatibility matrix is:

Django	Django REST Framework
1.11	3.9.3
2.0	3.9.3
2.1	3.9.3
2.2	3.9.3
3.0	3.11.0

The version 0.17.7 has been tested with the following versions of Django and Django REST Framework:

Django	Django REST Framework
1.8	3.6.2
1.9	3.6.2
1.10	3.6.2
1.11	3.7.7
2.0	3.7.7
2.1	3.8.2
2.2	3.9.2

12.2 Installing Elasticsearch

For development and testing purposes, it's often handy to be able to quickly switch between different Elasticsearch versions. Since this packages supports 2.x, 5.x and 6.x branches, you could make use of the following boxes/containers for development and testing.

Note: As of `django-elasticsearch-dsl-drf` 0.19, support for Elasticsearch versions prior 6.x has been dropped.

For all containers/boxes mentioned below, no authentication is required (for Elasticsearch).

12.2.1 Docker

Using `docker-compose` (persistent):

```
docker-compose up elasticsearch
```

12.2.1.1 6.x

6.3.2

```
docker pull docker.elastic.co/elasticsearch/elasticsearch:6.3.2
docker run -p 9200:9200 -e "discovery.type=single-node" -e "xpack.security.
↪enabled=false" docker.elastic.co/elasticsearch/elasticsearch:6.3.2
```

6.4.0

```
docker pull docker.elastic.co/elasticsearch/elasticsearch:6.4.0
docker run -p 9200:9200 -e "discovery.type=single-node" -e "xpack.security.
↪enabled=false" docker.elastic.co/elasticsearch/elasticsearch:6.4.0
```

12.2.1.2 7.x

7.3.0

```
docker pull docker.elastic.co/elasticsearch/elasticsearch:7.3.0
docker run -p 9200:9200 -e "discovery.type=single-node" -e "xpack.security.
↪enabled=false" docker.elastic.co/elasticsearch/elasticsearch:7.3.0
```

12.3 Quick start

The best way to get acquainted with `django-elasticsearch-dsl-drf`.

See it as a guide of diving into integration of Elasticsearch with Django with very low knowledge entry level.

Contents:

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      - *Required imports*
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      - *Required imports*
      - *ViewSet definition*
    - *URLs*
      - *Required imports*

            - *Router definition*
            - *URL patterns*
        * *Check what you've done so far*
            - *URLs*
            - *Test in browser*
    – *Development and debugging*
        * *Profiling tools*
            - *Installation*
            - *Configuration*
        * *Debugging*

12.3.1 Installation

(1) Install latest stable version from PyPI:

```
pip install django-elasticsearch-dsl-drf
```

(2) Add `rest_framework`, `django_elasticsearch_dsl` and `django_elasticsearch_dsl_drf` to `INSTALLED_APPS`:

```
INSTALLED_APPS = (
    # ...
    # REST framework
    'rest_framework',

    # Django Elasticsearch integration
    'django_elasticsearch_dsl',

    # Django REST framework Elasticsearch integration (this package)
    'django_elasticsearch_dsl_drf',
    # ...
)
```

(3) Basic Django REST framework and `django-elasticsearch-dsl` configuration:

```
REST_FRAMEWORK = {
    'DEFAULT_AUTHENTICATION_CLASSES': (
        'rest_framework.authentication.BasicAuthentication',
        'rest_framework.authentication.SessionAuthentication',
    ),
    'DEFAULT_PAGINATION_CLASS':
        'rest_framework.pagination.PageNumberPagination',
    'PAGE_SIZE': 100,
    'ORDERING_PARAM': 'ordering',
}

# Elasticsearch configuration
ELASTICSEARCH_DSL = {
    'default': {
        'hosts': 'localhost:9200'
```

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```
    },
}
```

12.3.2 Example app

To get started, let's imagine we have a simple book register with a couple of models.

- *Publisher model*: The book publisher model. Each book might have only one publisher (`ForeignKey` relation).
- *Author model*: The book author model. Each book might have unlimited number of authors (`ManyToMany` relation).
- *Tag model*: The tag model. Each book might have unlimited number of tags (`ManyToMany` relation).
- *Book model*: The book model.

To keep things separate, our Django models will reside in the `books` app. Elasticsearch documents and Django REST framework views will be defined in a `search_indexes` app. Both of the apps should be added to the `INSTALLED_APPS`.

```
INSTALLED_APPS = (
    # ...
    'books',  # Books application
    'search_indexes',  # Elasticsearch integration with the Django
                       # REST framework
    # ...
)
```

12.3.2.1 Sample models

Content of the `books/models.py` file. Additionally, see the code comments.

12.3.2.1.1 Required imports

Imports required for model definition.

books/models/book.py

```
import json

from django.conf import settings
from django.db import models
from django.utils.translation import gettext, gettext_lazy as _
```

12.3.2.1.2 Book statuses

books/models/book.py

```
# States indicate the publishing status of the book. Publishing might
# be in-progress, not yet published, published, rejected, etc.
BOOK_PUBLISHING_STATUS_PUBLISHED = 'published'
BOOK_PUBLISHING_STATUS_NOT_PUBLISHED = 'not_published'
BOOK_PUBLISHING_STATUS_IN_PROGRESS = 'in_progress'
BOOK_PUBLISHING_STATUS_CANCELLED = 'cancelled'
BOOK_PUBLISHING_STATUS_REJECTED = 'rejected'
BOOK_PUBLISHING_STATUS_CHOICES = (
    (BOOK_PUBLISHING_STATUS_PUBLISHED, "Published"),
    (BOOK_PUBLISHING_STATUS_NOT_PUBLISHED, "Not published"),
    (BOOK_PUBLISHING_STATUS_IN_PROGRESS, "In progress"),
    (BOOK_PUBLISHING_STATUS_CANCELLED, "Cancelled"),
    (BOOK_PUBLISHING_STATUS_REJECTED, "Rejected"),
)
BOOK_PUBLISHING_STATUS_DEFAULT = BOOK_PUBLISHING_STATUS_PUBLISHED
```

12.3.2.1.3 Publisher model

books/models/book.py

```
class Publisher(models.Model):
    """Publisher."""

    name = models.CharField(max_length=30)
    address = models.CharField(max_length=50)
    city = models.CharField(max_length=60)
    state_province = models.CharField(max_length=30)
    country = models.CharField(max_length=50)
    website = models.URLField()
    latitude = models.DecimalField(null=True,
                                   blank=True,
                                   decimal_places=15,
                                   max_digits=19,
                                   default=0)
    longitude = models.DecimalField(null=True,
                                    blank=True,
                                    decimal_places=15,
                                    max_digits=19,
                                    default=0)

    class Meta:
        """Meta options."""

        ordering = ["id"]

    def __str__(self):
        return self.name

    @property
    def location_field_indexing(self):
        """Location for indexing.

        Used in Elasticsearch indexing/tests of `geo_distance` native filter.
        """
        return {
            'lat': self.latitude,
```

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```
            'lon': self.longitude,
        }
```

12.3.2.1.4 Author model

books/models/author.py

```
class Author(models.Model):
    """Author."""

    salutation = models.CharField(max_length=10)
    name = models.CharField(max_length=200)
    email = models.EmailField()
    headshot = models.ImageField(upload_to='authors', null=True, blank=True)

    class Meta:
        """Meta options."""

        ordering = ["id"]

    def __str__(self):
        return self.name
```

12.3.2.1.5 Tag model

books/models/tag.py

```
class Tag(models.Model):
    """Simple tag model."""

    title = models.CharField(max_length=255, unique=True)

    class Meta:
        """Meta options."""

        verbose_name = _("Tag")
        verbose_name_plural = _("Tags")

    def __str__(self):
        return self.title
```

12.3.2.1.6 Book model

books/models/book.py

```
class Book(models.Model):
    """Book."""

    title = models.CharField(max_length=100)
    description = models.TextField(null=True, blank=True)
    summary = models.TextField(null=True, blank=True)
```

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```
    authors = models.ManyToManyField('books.Author', related_name='books')
    publisher = models.ForeignKey(Publisher, related_name='books')
    publication_date = models.DateField()
    state = models.CharField(max_length=100,
                             choices=BOOK_PUBLISHING_STATUS_CHOICES,
                             default=BOOK_PUBLISHING_STATUS_DEFAULT)
    isbn = models.CharField(max_length=100, unique=True)
    price = models.DecimalField(max_digits=10, decimal_places=2)
    pages = models.PositiveIntegerField(default=200)
    stock_count = models.PositiveIntegerField(default=30)
    tags = models.ManyToManyField('books.Tag',
                                  related_name='books',
                                  blank=True)

    class Meta:
        """Meta options."""

        ordering = ["isbn"]

    def __str__(self):
        return self.title

    # The only publisher information we're going to need in our document
    # is the publisher name. Since publisher isn't a required field,
    # we define a properly on a model level to avoid indexing errors on
    # non-existing relation.
    @property
    def publisher_indexing(self):
        """Publisher for indexing.

        Used in Elasticsearch indexing.
        """
        if self.publisher is not None:
            return self.publisher.name

    # As of tags, again, we only need a flat list of tag names, on which
    # we can filter. Therefore, we define a properly on a model level,
    # which will return a JSON dumped list of tags relevant to the
    # current book model object.
    @property
    def tags_indexing(self):
        """Tags for indexing.

        Used in Elasticsearch indexing.
        """
        return [tag.title for tag in self.tags.all()]
```

12.3.2.2 Admin classes

This is just trivial. A couple of correspondent admin classes in order to ba able to fill some data.

books/admin.py

```
from django.contrib import admin
```

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```
from .models import *


@admin.register(Book)
class BookAdmin(admin.ModelAdmin):
    """Book admin."""

    list_display = ('title', 'isbn', 'price', 'publication_date')
    search_fields = ('title',)
    filter_horizontal = ('authors', 'tags',)


@admin.register(Author)
class AuthorAdmin(admin.ModelAdmin):
    """Author admin."""

    list_display = ('name', 'email',)
    search_fields = ('name',)


@admin.register(Publisher)
class PublisherAdmin(admin.ModelAdmin):
    """Publisher admin."""

    list_display = ('name',)
    search_fields = ('name',)


@admin.register(Tag)
class TagAdmin(admin.ModelAdmin):
    """Tag admin."""

    list_display = ('title',)
    search_fields = ('title',)
```

12.3.2.3 Create database tables

For now, just run the migrations to create the database tables.

```
./manage.py makemigrations books
./manage.py migrate books
```

12.3.2.4 Fill in some data

If you have followed the instructions, you should now be able to log into the Django admin and create a dozen of Book/Author/Publisher/Tag records in admin.

```
http://localhost:8000/admin/books/publisher/
http://localhost:8000/admin/books/author/
http://localhost:8000/admin/books/tag/
http://localhost:8000/admin/books/book/
```

Once you've done that, proceed to the next step.

12.3.2.5 Sample document

In Elasticsearch, a document is a basic unit of information that can be indexed. For example, you can have a document for a single customer, another document for a single product, and yet another for a single order. This document is expressed in JSON (JavaScript Object Notation) which is an ubiquitous internet data interchange format.

Within an index/type, you can store as many documents as you want. Note that although a document physically resides in an index, a document actually must be indexed/assigned to a type inside an index.

Simply said, you could see an Elasticsearch index as a database and a document as a database table (which makes a Document definition in Elasticsearch DSL similar to a Django Model definition).

Often, complex SQL model structures are flatterned in Elasticsearch indexes/documents. Nested relations are denormalized.

In our example, all 4 models (`Author`, `Publisher`, `Tag`, `Book`) would be flatterned into a single `BookDocument`, which would hold all the required information.

Content of the `search_indexes/documents/book.py` file. Additionally, see the code comments.

12.3.2.5.1 Required imports

search_indexes/documents/book.py

```
from django.conf import settings
from django_elasticsearch_dsl import Document, Index, fields
from elasticsearch_dsl import analyzer

from books.models import Book
```

12.3.2.5.2 Index definition

To separate dev/test/staging/production indexes, the following approach is recommended.

12.3.2.5.2.1 Settings

Note: In the examples below the `search_indexes.documents.book` and `search_indexes.documents.publisher` are the pythonic file paths to modules where documents are defined.

settings/base.py

Note: In this example, `book` and `publisher` are Elasticsearch index names.

```
# Name of the Elasticsearch index
ELASTICSEARCH_INDEX_NAMES = {
    'search_indexes.documents.book': 'book',
    'search_indexes.documents.publisher': 'publisher',
}
```

settings/testing.py

Note: In this example, `test_book` and `test_publisher` are Elasticsearch index names.

```
# Name of the Elasticsearch index
ELASTICSEARCH_INDEX_NAMES = {
    'search_indexes.documents.book': 'test_book',
    'search_indexes.documents.publisher': 'test_publisher',
}
```

settings/production.py

```
# Name of the Elasticsearch index
ELASTICSEARCH_INDEX_NAMES = {
    'search_indexes.documents.book': 'prod_book',
    'search_indexes.documents.publisher': 'prod_publisher',
}
```

12.3.2.5.2.2 Document index

search_indexes/documents/book.py

```
# Name of the Elasticsearch index
INDEX = Index(settings.ELASTICSEARCH_INDEX_NAMES[__name__])

# See Elasticsearch Indices API reference for available settings
INDEX.settings(
    number_of_shards=1,
    number_of_replicas=1
)
```

12.3.2.5.3 Custom analyzers

```
html_strip = analyzer(
    'html_strip',
    tokenizer="standard",
    filter=["standard", "lowercase", "stop", "snowball"],
    char_filter=["html_strip"]
)
```

12.3.2.5.4 Document definition

search_indexes/documents/book.py

```
@INDEX.doc_type
class BookDocument(Document):
    """Book Elasticsearch document."""

    id = fields.IntegerField(attr='id')

    title = fields.StringField(
        analyzer=html_strip,
```

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```
        fields={
            'raw': fields.StringField(analyzer='keyword'),
        }
    )

    description = fields.StringField(
        analyzer=html_strip,
        fields={
            'raw': fields.StringField(analyzer='keyword'),
        }
    )

    summary = fields.StringField(
        analyzer=html_strip,
        fields={
            'raw': fields.StringField(analyzer='keyword'),
        }
    )

    publisher = fields.StringField(
        attr='publisher_indexing',
        analyzer=html_strip,
        fields={
            'raw': fields.StringField(analyzer='keyword'),
        }
    )

    publication_date = fields.DateField()

    state = fields.StringField(
        analyzer=html_strip,
        fields={
            'raw': fields.StringField(analyzer='keyword'),
        }
    )

    isbn = fields.StringField(
        analyzer=html_strip,
        fields={
            'raw': fields.StringField(analyzer='keyword'),
        }
    )

    price = fields.FloatField()

    pages = fields.IntegerField()

    stock_count = fields.IntegerField()

    tags = fields.StringField(
        attr='tags_indexing',
        analyzer=html_strip,
        fields={
            'raw': fields.StringField(analyzer='keyword', multi=True),
            'suggest': fields.CompletionField(multi=True),
        },
        multi=True
```

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```
    )

    class Django(object):
        """Inner nested class Django."""

        model = Book  # The model associate with this Document
```

12.3.2.6 Syncing Django's database with Elasticsearch indexes

So far, we have a couple of Django models and a single (decentralized) Elasticsearch index/document (Book).

12.3.2.6.1 Full database sync

The excellent `django-elasticsearch-dsl` library makes a good job of keeping the Book index fresh. It makes use of signals, so whenever the Book model is changed, the correspondent BookDocument indexes would be updated.

To simply run the full sync between Django's database and Elasticsearch, do as follows:

(1) Create Elasticsearch indexes:

```
./manage.py search_index --create -f
```

(2) Sync the data:

```
./manage.py search_index --populate -f
```

However, in case if a Tag, Publisher or Author models change, the Book index would not be automatically updated.

12.3.2.6.2 Sample partial sync (using custom signals)

In order to keep indexes fresh, you will have to write a couple of simple lines of code (using Django's signals). Whenever a change is made to any of the Tag, Publisher or Author models, we're going to update the correspondent BookDocument index.

12.3.2.6.2.1 Required imports

search_indexes/signals.py

```
from django.db.models.signals import post_save, post_delete
from django.dispatch import receiver

from django_elasticsearch_dsl.registries import registry
```

12.3.2.6.2.2 Update book index on related model change

search_indexes/signals.py

```
@receiver(post_save)
def update_document(sender, **kwargs):
    """Update document on added/changed records.

    Update Book document index if related `books.Publisher` (`publisher`),
    `books.Author` (`authors`), `books.Tag` (`tags`) fields have been updated
    in the database.
    """
    app_label = sender._meta.app_label
    model_name = sender._meta.model_name
    instance = kwargs['instance']

    if app_label == 'book':
        # If it is `books.Publisher` that is being updated.
        if model_name == 'publisher':
            instances = instance.books.all()
            for _instance in instances:
                registry.update(_instance)

        # If it is `books.Author` that is being updated.
        if model_name == 'author':
            instances = instance.books.all()
            for _instance in instances:
                registry.update(_instance)

        # If it is `books.Tag` that is being updated.
        if model_name == 'tag':
            instances = instance.books.all()
            for _instance in instances:
                registry.update(_instance)
```

12.3.2.6.2.3 Update book index on related model removal

search_indexes/signals.py

```
@receiver(post_delete)
def delete_document(sender, **kwargs):
    """Update document on deleted records.

    Updates Book document from index if related `books.Publisher`
    (`publisher`), `books.Author` (`authors`), `books.Tag` (`tags`) fields
    have been removed from database.
    """
    app_label = sender._meta.app_label
    model_name = sender._meta.model_name
    instance = kwargs['instance']

    if app_label == 'books':
        # If it is `books.Publisher` that is being updated.
        if model_name == 'publisher':
            instances = instance.books.all()
            for _instance in instances:
                registry.update(_instance)
                # registry.delete(_instance, raise_on_error=False)

        # If it is `books.Author` that is being updated.
```

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```
        if model_name == 'author':
            instances = instance.books.all()
            for _instance in instances:
                registry.update(_instance)
                # registry.delete(_instance, raise_on_error=False)

        # If it is `books.Tag` that is being updated.
        if model_name == 'tag':
            instances = instance.books.all()
            for _instance in instances:
                registry.update(_instance)
                # registry.delete(_instance, raise_on_error=False)
```

12.3.2.7 Sample serializer

At this step we're going to define a serializer to be used in the Django REST framework ViewSet.

Content of the `search_indexes/serializers.py` file. Additionally, see the code comments.

12.3.2.7.1 Required imports

search_indexes/serializers/book.py

```
import json

from rest_framework import serializers
from django_elasticsearch_dsl_drf.serializers import DocumentSerializer

from .documents import BookDocument
```

12.3.2.7.2 Serializer definition

Simplest way to create a serializer, is to just specify which fields are needed to be serialized and leave it further to the dynamic serializer.

search_indexes/serializers/book.py

```
class BookDocumentSerializer(DocumentSerializer):
    """Serializer for the Book document."""

    class Meta:
        """Meta options."""

        # Specify the correspondent document class
        document = BookDocument

        # List the serializer fields. Note, that the order of the fields
        # is preserved in the ViewSet.
        fields = (
            'id',
            'title',
            'description',
```

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```
            'summary',
            'publisher',
            'publication_date',
            'state',
            'isbn',
            'price',
            'pages',
            'stock_count',
            'tags',
        )
```

However, if dynamic serializer doesn't work for your or you want to customize too many things, you are free to use standard `Serializer` class of the Django REST framework.

search_indexes/serializers/book.py

```
class BookDocumentSerializer(serializers.Serializer):
    """Serializer for the Book document."""

    id = serializers.IntegerField(read_only=True)

    title = serializers.CharField(read_only=True)
    description = serializers.CharField(read_only=True)
    summary = serializers.CharField(read_only=True)

    publisher = serializers.CharField(read_only=True)
    publication_date = serializers.DateField(read_only=True)
    state = serializers.CharField(read_only=True)
    isbn = serializers.CharField(read_only=True)
    price = serializers.FloatField(read_only=True)
    pages = serializers.IntegerField(read_only=True)
    stock_count = serializers.IntegerField(read_only=True)
    tags = serializers.SerializerMethodField()

    class Meta:
        """Meta options."""

        # List the serializer fields. Note, that the order of the fields
        # is preserved in the ViewSet.
        fields = (
            'id',
            'title',
            'description',
            'summary',
            'publisher',
            'publication_date',
            'state',
            'isbn',
            'price',
            'pages',
            'stock_count',
            'tags',
        )

    def get_tags(self, obj):
        """Get tags."""
        if obj.tags:
```

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```
            return list(obj.tags)
        else:
            return []
```

12.3.2.8 ViewSet definition

At this step, we're going to define Django REST framework ViewSets.

Content of the `search_indexes/viewsets.py` file. Additionally, see the code comments.

12.3.2.8.1 Required imports

search_indexes/viewsets/book.py

```
from django_elasticsearch_dsl_drf.constants import (
    LOOKUP_FILTER_TERMS,
    LOOKUP_FILTER_RANGE,
    LOOKUP_FILTER_PREFIX,
    LOOKUP_FILTER_WILDCARD,
    LOOKUP_QUERY_IN,
    LOOKUP_QUERY_GT,
    LOOKUP_QUERY_GTE,
    LOOKUP_QUERY_LT,
    LOOKUP_QUERY_LTE,
    LOOKUP_QUERY_EXCLUDE,
)
from django_elasticsearch_dsl_drf.filter_backends import (
    FilteringFilterBackend,
    IdsFilterBackend,
    OrderingFilterBackend,
    DefaultOrderingFilterBackend,
    SearchFilterBackend,
)
from django_elasticsearch_dsl_drf.viewsets import BaseDocumentViewSet
from django_elasticsearch_dsl_drf.pagination import PageNumberPagination

from .documents import BookDocument, PublisherDocument
from .serializers import BookDocumentSerializer
```

12.3.2.8.2 ViewSet definition

search_indexes/viewsets/book.py

```
class BookDocumentView(BaseDocumentViewSet):
    """The BookDocument view."""

    document = BookDocument
    serializer_class = BookDocumentSerializer
    pagination_class = PageNumberPagination
    lookup_field = 'id'
    filter_backends = [
        FilteringFilterBackend,
```

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```
        IdsFilterBackend,
        OrderingFilterBackend,
        DefaultOrderingFilterBackend,
        SearchFilterBackend,
    ]
    # Define search fields
    search_fields = (
        'title',
        'description',
        'summary',
    )
    # Define filter fields
    filter_fields = {
        'id': {
            'field': 'id',
            # Note, that we limit the lookups of id field in this example,
            # to `range`, `in`, `gt`, `gte`, `lt` and `lte` filters.
            'lookups': [
                LOOKUP_FILTER_RANGE,
                LOOKUP_QUERY_IN,
                LOOKUP_QUERY_GT,
                LOOKUP_QUERY_GTE,
                LOOKUP_QUERY_LT,
                LOOKUP_QUERY_LTE,
            ],
        },
        'title': 'title.raw',
        'publisher': 'publisher.raw',
        'publication_date': 'publication_date',
        'state': 'state.raw',
        'isbn': 'isbn.raw',
        'price': {
            'field': 'price.raw',
            # Note, that we limit the lookups of `price` field in this
            # example, to `range`, `gt`, `gte`, `lt` and `lte` filters.
            'lookups': [
                LOOKUP_FILTER_RANGE,
                LOOKUP_QUERY_GT,
                LOOKUP_QUERY_GTE,
                LOOKUP_QUERY_LT,
                LOOKUP_QUERY_LTE,
            ],
        },
        'pages': {
            'field': 'pages',
            # Note, that we limit the lookups of `pages` field in this
            # example, to `range`, `gt`, `gte`, `lt` and `lte` filters.
            'lookups': [
                LOOKUP_FILTER_RANGE,
                LOOKUP_QUERY_GT,
                LOOKUP_QUERY_GTE,
                LOOKUP_QUERY_LT,
                LOOKUP_QUERY_LTE,
            ],
        },
        'stock_count': {
            'field': 'stock_count',
```

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```
            # Note, that we limit the lookups of `stock_count` field in
            # this example, to `range`, `gt`, `gte`, `lt` and `lte`
            # filters.
            'lookups': [
                LOOKUP_FILTER_RANGE,
                LOOKUP_QUERY_GT,
                LOOKUP_QUERY_GTE,
                LOOKUP_QUERY_LT,
                LOOKUP_QUERY_LTE,
            ],
        },
        'tags': {
            'field': 'tags',
            # Note, that we limit the lookups of `tags` field in
            # this example, to `terms, `prefix`, `wildcard`, `in` and
            # `exclude` filters.
            'lookups': [
                LOOKUP_FILTER_TERMS,
                LOOKUP_FILTER_PREFIX,
                LOOKUP_FILTER_WILDCARD,
                LOOKUP_QUERY_IN,
                LOOKUP_QUERY_EXCLUDE,
            ],
        },
        'tags.raw': {
            'field': 'tags.raw',
            # Note, that we limit the lookups of `tags.raw` field in
            # this example, to `terms, `prefix`, `wildcard`, `in` and
            # `exclude` filters.
            'lookups': [
                LOOKUP_FILTER_TERMS,
                LOOKUP_FILTER_PREFIX,
                LOOKUP_FILTER_WILDCARD,
                LOOKUP_QUERY_IN,
                LOOKUP_QUERY_EXCLUDE,
            ],
        },
    }
    # Define ordering fields
    ordering_fields = {
        'id': 'id',
        'title': 'title.raw',
        'price': 'price.raw',
        'state': 'state.raw',
        'publication_date': 'publication_date',
    }
    # Specify default ordering
    ordering = ('id', 'title', 'price',)
```

12.3.2.9 URLs

At this step, we're going to define url patterns.

Content of the `search_indexes/urls.py` file. Additionally, see the code comments.

12.3.2.9.1 Required imports

search_indexes/urls.py

```
from django.conf.urls import url, include
from rest_framework.routers import DefaultRouter

from .views import BookDocumentView
```

12.3.2.9.2 Router definition

search_indexes/urls.py

```
router = DefaultRouter()
books = router.register(r'books',
                        BookDocumentView,
                        basename='bookdocument')
```

12.3.2.9.3 URL patterns

search_indexes/urls.py

```
urlpatterns = [
    url(r'^', include(router.urls)),
]
```

12.3.2.10 Check what you've done so far

At this point, you are one step away from a working example of integrating Elasticsearch DSL with Django.

12.3.2.10.1 URLs

If you didn't add the urls of the `search_indexes` example application to your project's global url patterns, make sure to do it now.

```
from django.conf.urls import include, re_path
from search_indexes import urls as search_index_urls

urlpatterns = [
    # ...
    # Search URLs
    re_path(r'^search/', include(search_index_urls)),
    # ...
]
```

12.3.2.10.2 Test in browser

Open the following URL in your browser.

```
http://localhost:8000/search/books/
```

Perform a number of lookups:

```
http://localhost:8001/search/books/?ids=54|55|56
http://localhost:8001/search/books/?summary__contains=photography
http://localhost:8001/search/books/?tags__contains=ython
http://localhost:8001/search/books/?state=published
http://localhost:8001/search/books/?pages__gt=10&pages__lt=30
```

12.3.3 Development and debugging

12.3.3.1 Profiling tools

Looking for profiling tools for Elasticsearch?

Try django-elasticsearch-debug-toolbar package. It's implemented as a panel for the well known Django Debug Toolbar and gives you full insights on what's happening on the side of Elasticsearch.

12.3.3.1.1 Installation

```
pip install django-debug-toolbar
pip install django-elasticsearch-debug-toolbar
```

12.3.3.1.2 Configuration

Change your development settings in the following way:

settings/dev.py

```
MIDDLEWARE += (
    'debug_toolbar.middleware.DebugToolbarMiddleware',
    'debug_toolbar_force.middleware.ForceDebugToolbarMiddleware',
)

INSTALLED_APPS += (
    'debug_toolbar',
    'elastic_panel',
)

DEBUG_TOOLBAR_CONFIG = {
    'INTERCEPT_REDIRECTS': False,
}

DEBUG_TOOLBAR_PANELS = (
    # Defaults
    'debug_toolbar.panels.versions.VersionsPanel',
    'debug_toolbar.panels.timer.TimerPanel',
    'debug_toolbar.panels.settings.SettingsPanel',
    'debug_toolbar.panels.headers.HeadersPanel',
    'debug_toolbar.panels.request.RequestPanel',
    'debug_toolbar.panels.sql.SQLPanel',
```

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```
    'debug_toolbar.panels.staticfiles.StaticFilesPanel',
    'debug_toolbar.panels.templates.TemplatesPanel',
    'debug_toolbar.panels.cache.CachePanel',
    'debug_toolbar.panels.signals.SignalsPanel',
    'debug_toolbar.panels.logging.LoggingPanel',
    'debug_toolbar.panels.redirects.RedirectsPanel',
    # Additional
    'elastic_panel.panel.ElasticDebugPanel',
)
```

12.3.3.2 Debugging

Although (the unbeatable) Kibana is strongly recommended for data analyses, there are other good tools worth mentioning. One of them is elasticsearch-head Elasticsearch 2.x plugin or a correspondent Chrome extension of the same plugin. You may find it very useful for quick data preview or testing Elasticsearch queries.

12.4 Filter usage examples

Example usage of filtering backends.

Contents:

Table of Contents

- *Filter usage examples*
  - *Search*
    - *Search in all fields*
    - *Search a single term on specific field*
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      - *Native*
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- *gte*
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- *lte*
- *startswith*
- *endswith*
- *isnull*
- *exclude*

– *Usage examples*

12.4.1 Search

Query param name reserved for search is `search`. Make sure your models and documents do not have it as a field or attribute.

Multiple search terms are joined with `OR`.

Let's assume we have a number of Book items with fields `title`, `description` and `summary`.

12.4.1.1 Search in all fields

Search in all fields (`name`, `address`, `city`, `state_province` and `country`) for word "reilly".

```
http://127.0.0.1:8080/search/publisher/?search=reilly
```

12.4.1.2 Search a single term on specific field

In order to search in specific field (`name`) for term "reilly", add the field name separated with `:` to the search term.

```
http://127.0.0.1:8080/search/publisher/?search=name:reilly
```

12.4.1.3 Search for multiple terms

In order to search for multiple terms "reilly", "bloomsbury" add multiple `search` query params.

```
http://127.0.0.1:8080/search/publisher/?search=reilly&search=bloomsbury
```

12.4.1.4 Search for multiple terms in specific fields

In order to search for multiple terms "reilly", "bloomsbury" in specific fields add multiple `search` query params and field names separated with `:` to each of the search terms.

```
http://127.0.0.1:8080/search/publisher/?search=name:reilly&search=city:london
```

12.4.2 Filtering

12.4.2.1 Supported lookups

12.4.2.1.1 Native

The following native (to Elasticsearch) filters/lookups are implemented:

- *term*
- *terms*
- *range*
- *exists*
- *prefix*
- *wildcard*
- *regexp*
- *fuzzy*
- *type*
- *ids*

12.4.2.1.1.1 term

Find documents which contain the exact term specified in the field specified.

```
http://127.0.0.1:8080/search/books/?tags__term=education&tags__term=economy
```

12.4.2.1.1.2 terms

Find documents which contain any of the exact terms specified in the field specified. Note, that multiple values are separated with double underscores __.

```
http://localhost:8000/api/articles/?id=1&id=2&id=3
http://localhost:8000/api/articles/?id__terms=1__2__3
```

12.4.2.1.1.3 range

Find documents where the field specified contains values (dates, numbers, or strings) in the range specified.

From, to

```
http://localhost:8000/api/users/?age__range=16__67
```

From, to, boost

```
http://localhost:8000/api/users/?age__range=16__67__2.0
```

12.4.2.1.1.4 exists

Find documents where the field specified contains any non-null value.

```
http://localhost:8000/api/articles/?tags__exists=true
```

12.4.2.1.1.5 prefix

Find documents where the field specified contains terms which begin with the exact prefix specified.

```
http://localhost:8000/api/articles/?tags__prefix=bio
```

12.4.2.1.1.6 wildcard

Find documents where the field specified contains terms which match the pattern specified, where the pattern supports single character wildcards (?) and multi-character wildcards (*)

```
http://localhost:8000/api/articles/?title__wildcard=*elusional*
```

Should match: *delusional insanity*.

12.4.2.1.1.7 ids

Find documents with the specified type and IDs.

```
http://localhost:8000/api/articles/?ids=68__64__58
http://localhost:8000/api/articles/?ids=68&ids=64&ids=58
```

12.4.2.1.2 Functional

The following functional (non-native to Elasticsearch, but common in Django) filters/lookups are implemented:

- *contains*
- *in*
- *gt*
- *gte*
- *lt*
- *lte*
- *startswith*
- *endswith*
- *isnull*
- *exclude*

12.4.2.1.2.1 contains

Case-insensitive containment test.

```
http://localhost:8000/api/articles/?state__contains=lishe
```

Should match: *published*, *not published*, *needs polishing*.

12.4.2.1.2.2 in

In a given list.

```
http://localhost:8000/api/articles/?id__in=1__2__3
```

12.4.2.1.2.3 gt

Greater than.

```
http://localhost:8000/api/users/?id__gt=10
```

12.4.2.1.2.4 gte

Greater than or equal to.

```
http://localhost:8000/api/users/?id__gte=10
```

12.4.2.1.2.5 lt

Less than.

```
http://localhost:8000/api/users/?id__lt=10
```

12.4.2.1.2.6 lte

Less than or equal to.

```
http://localhost:8000/api/users/?id__lte=10
```

12.4.2.1.2.7 startswith

Case-sensitive starts-with.

```
http://localhost:8000/api/articles/?tags__startswith=bio
```

Should match: *biography*, *bio mechanics*

12.4.2.1.2.8 endswith

Case-sensitive ends-with.

```
http://localhost:8000/api/articles/?state__endswith=lished
```

Should match: *published*, *not published*.

12.4.2.1.2.9 isnull

Takes either True or False.

True

```
http://localhost:8000/api/articles/?null_field__isnull=true
```

False

```
http://localhost:8000/api/articles/?tags__isnull=false
```

12.4.2.1.2.10 exclude

Returns a new query set of containing objects that do not match the given lookup parameters.

```
http://localhost:8000/api/articles/?tags__exclude=children
http://localhost:8000/api/articles/?tags__exclude=children__python
```

12.4.3 Usage examples

See the example project for sample models/views/serializers.

- models
- documents
- serializers
- views

Additionally, see:

- Basic usage examples
- Advanced usage examples
- Misc usage examples

12.5 Search backends

12.5.1 Compound search filter backend

Compound search filter backend aims to replace old style *SearchFilterBackend*.

12.5.1.1 Multi-match

12.5.1.1.1 Sample view

```
from django_elasticsearch_dsl_drf.filter_backends import (
    DefaultOrderingFilterBackend,
    CompoundSearchFilterBackend,
    OrderingFilterBackend,
)
from django_elasticsearch_dsl_drf.viewsets import DocumentViewSet

from .documents import BookDocument
from .serializers import BookDocumentSerializer

class BookCompoundSearchBackendDocumentViewSet(DocumentViewSet):

    document = BookDocument
    serializer_class = BookDocumentSerializer
    lookup_field = 'id'

    filter_backends = [
        # ...
        OrderingFilterBackend,
        DefaultOrderingFilterBackend,
        CompoundSearchFilterBackend,
        # ...
    ]

    multi_match_search_fields = (
        'title',
        'description',
        'summary',
    )

    ordering = ('_score', 'id', 'title', 'price',)
```

12.5.1.1.2 Sample request

```
http://localhost:8000/search/books-compound-search-backend/?search=enim
```

12.5.1.1.3 Generated query

```
{
  "from": 0,
  "sort": [
    "id",
    "title",
    "price"
  ],
  "size": 23,
  "query": {
    "bool": {
```

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```
      "should": [
        {
          "match": {
            "title": {
              "query": "enim"
            }
          }
        },
        {
          "match": {
            "description": {
              "query": "enim"
            }
          }
        },
        {
          "match": {
            "summary": {
              "query": "enim"
            }
          }
        }
      ]
    }
  }
}
```

12.5.1.2 Fuzzy search

12.5.1.2.1 Sample view

```
class BookCompoundFuzzySearchBackendDocumentViewSet(DocumentViewSet):
    # ...
    filter_backends = [
        # ...
        CompoundSearchFilterBackend,
        # ...
    ]

    search_fields = {
        'title': {'fuzziness': 'AUTO'},
        'description': None,
        'summary': None,
    }
```

12.5.1.2.2 Sample request

```
http://localhost:8000/search/books-compound-fuzzy-search-backend/?search=Performance
```

12.5.1.2.3 Generated query

```
{
  "from": 0,
  "size": 1,
  "query": {
    "bool": {
      "should": [
        {
          "match": {
            "title": {
              "fuzziness": "AUTO",
              "query": "Performance"
            }
          }
        },
        {
          "match": {
            "description": {
              "query": "Performance"
            }
          }
        },
        {
          "match": {
            "summary": {
              "query": "Performance"
            }
          }
        }
      ]
    }
  }
}
```

12.5.2 Multi match search filter backend

Document and serializer definition are trivial (there are lots of examples in other sections).

12.5.2.1 Sample view

```
from django_elasticsearch_dsl_drf.filter_backends import (
    DefaultOrderingFilterBackend,
    MultiMatchSearchFilterBackend,
    OrderingFilterBackend,
)
from django_elasticsearch_dsl_drf.viewsets import DocumentViewSet

from .documents import BookDocument
from .serializers import BookDocumentSerializer


class BookMultiMatchSearchFilterBackendDocumentViewSet(DocumentViewSet):

```

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```
    document = BookDocument
    serializer_class = BookDocumentSerializer
    lookup_field = 'id'

    filter_backends = [
        # ...
        OrderingFilterBackend,
        DefaultOrderingFilterBackend,
        MultiMatchSearchFilterBackend,
        # ...
    ]

    multi_match_search_fields = {
        'title': {'boost': 4},
        'summary': {'boost': 2},
        'description': None,
    }

    ordering = ('_score', 'id', 'title', 'price',)
```

12.5.2.2 Sample request

Note: Multiple search params (*search_multi_match*) are not supported. Even if you provide multiple search params, the first one would be picked, having the rest simply ignored.

```
http://localhost:8000/search/books-multi-match-search-backend/?search_multi_
↪match=debitis%20enim
```

12.5.2.3 Generated query

```
{
  "from": 0,
  "query": {
    "multi_match": {
      "query": "debitis enim",
      "fields": [
        "summary^2",
        "description",
        "title^4"
      ]
    }
  },
  "size": 38,
  "sort": [
    "_score",
    "id",
    "title",
    "price"
  ]
}
```

12.5.2.4 Options

All standard multi match query options are available/tunable with help of `multi_match_options` view property.

Selective list of available options:

- operator
- type
- analyzer
- tie_breaker

12.5.2.4.1 Type options

See the Elasticsearch docs for detailed explanation.

- best_fields
- most_fields
- cross_fields
- phrase
- phrase_prefix

Example

```
class BookMultiMatchSearchFilterBackendDocumentViewSet(DocumentViewSet):

    # ...

    multi_match_options = {
        'type': 'phrase'
    }
```

12.5.2.4.2 Operator options

Can be either `and` or `or`.

12.5.3 Simple query string filter backend

Document and serializer definition are trivial (there are lots of examples in other sections).

12.5.3.1 Sample view

```
from django_elasticsearch_dsl_drf.filter_backends import (
    DefaultOrderingFilterBackend,
    SimpleQueryStringSearchFilterBackend,
    OrderingFilterBackend,
)
from django_elasticsearch_dsl_drf.viewsets import DocumentViewSet

from .documents import BookDocument
```

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```
from .serializers import BookDocumentSerializer


class BookSimpleQueryStringSearchFilterBackendDocumentViewSet(DocumentViewSet):

    document = BookDocument
    serializer_class = BookDocumentSerializer
    lookup_field = 'id'

    filter_backends = [
        # ...
        OrderingFilterBackend,
        DefaultOrderingFilterBackend,
        SimpleQueryStringSearchFilterBackend,
        # ...
    ]

    simple_query_string_search_fields = {
        'title': {'boost': 4},
        'summary': {'boost': 2},
        'description': None,
    }

    ordering = ('_score', 'id', 'title', 'price',)
```

12.5.3.2 Sample request 1

Note: Multiple search params (*search_simple_query_string*) are not supported. Even if you provide multiple search params, the first one would be picked, having the rest simply ignored.

```
http://localhost:8000/search/books-simple-query-string-search-backend/?search_simple_
↪query_string="chapter%20II"%20%2Bfender
```

12.5.3.3 Generated query 1

```
{
  "query": {
    "simple_query_string": {
      "query": "\"chapter II\" +fender",
      "default_operator": "and",
      "fields": [
        "title",
        "description",
        "summary"
      ]
    }
  },
  "sort": [
    "_score",
    "id",
    "title",
```

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```
    "price"
  ],
  "from": 0,
  "size": 1
}
```

12.5.3.4 Sample request 2

Note: Multiple search params (*search_simple_query_string*) are not supported. Even if you provide multiple search params, the first one would be picked, having the rest simply ignored.

```
http://localhost:8000/search/books-simple-query-string-search-backend/?search_simple_
↪query_string="chapter%20II"%20%2B(shutting%20|%20fender)
```

12.5.3.5 Generated query 2

```
{
  "query": {
    "simple_query_string": {
      "query": "\"chapter II\" +(shutting | fender)",
      "default_operator": "and",
      "fields": [
        "title",
        "description",
        "summary"
      ]
    }
  },
  "sort": [
    "_score",
    "id",
    "title",
    "price"
  ],
  "from": 0,
  "size": 2
}
```

12.5.3.6 Sample request 3

Note: Multiple search params (*search_simple_query_string*) are not supported. Even if you provide multiple search params, the first one would be picked, having the rest simply ignored.

```
http://localhost:8000/search/books-simple-query-string-search-backend/?search_simple_
↪query_string=%22Pool%20of%20Tears%22%20-considering
```

12.5.3.7 Generated query 3

```
{
  "query": {
    "simple_query_string": {
      "query": "\"Pool of Tears\" -considering",
      "default_operator": "and",
      "fields": [
        "title",
        "description",
        "summary"
      ]
    }
  },
  "sort": [
    "_score",
    "id",
    "title",
    "price"
  ],
  "from": 0,
  "size": 1
}
```

12.5.3.8 Options

All standard multi match query options are available/tunable with help of `simple_query_string_options` view property.

Selective list of available options:

- default_operator

12.5.3.8.1 Default Operator options

Can be either `and` or `or`.

Example

```
class BookSimpleQueryStringSearchFilterBackendDocumentViewSet(DocumentViewSet):

    # ...

    simple_query_string_options = {
        "default_operator": "and",
    }
```

12.6 Basic usage examples

Basic Django REST framework integration example

See the example project for sample models/views/serializers.

- models

- documents
- serializers
- views

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      - *Filtering*
      - *Ordering*

12.6.1 Example app

12.6.1.1 Sample models

books/models/publisher.py

```
class Publisher(models.Model):
    """Publisher."""

    name = models.CharField(max_length=30)
    address = models.CharField(max_length=50)
    city = models.CharField(max_length=60)
    state_province = models.CharField(max_length=30)
    country = models.CharField(max_length=50)
    website = models.URLField()
    latitude = models.DecimalField(null=True,
                                   blank=True,
                                   decimal_places=15,
                                   max_digits=19,
                                   default=0)
    longitude = models.DecimalField(null=True,
                                    blank=True,
                                    decimal_places=15,
                                    max_digits=19,
                                    default=0)

    class Meta:
```

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```
        """Meta options."""

        ordering = ["id"]

    def __str__(self):
        return self.name

    @property
    def location_field_indexing(self):
        """Location for indexing.

        Used in Elasticsearch indexing/tests of `geo_distance` native filter.
        """
        return {
            'lat': self.latitude,
            'lon': self.longitude,
        }
```

12.6.1.2 Sample document

search_indexes/documents/publisher.py

```
from django_elasticsearch_dsl import Document, Index, fields
from elasticsearch_dsl import analyzer

from books.models import Publisher

# Name of the Elasticsearch index
PUBLISHER_INDEX = Index('publisher')
# See Elasticsearch Indices API reference for available settings
PUBLISHER_INDEX.settings(
    number_of_shards=1,
    number_of_replicas=1
)

@PUBLISHER_INDEX.doc_type
class PublisherDocument(Document):
    """Publisher Elasticsearch document."""

    id = fields.IntegerField(attr='id')

    name = fields.StringField(
        fields={
            'raw': fields.StringField(analyzer='keyword'),
        }
    )
    info = fields.StringField(
        fields={
            'raw': fields.StringField(analyzer='keyword'),
        }
    )
    address = fields.StringField(
        fields={
            'raw': fields.StringField(analyzer='keyword'),
        }
```

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```
    )
    city = fields.StringField(
        fields={
            'raw': fields.StringField(analyzer='keyword'),
        }
    )
    state_province = fields.StringField(
        fields={
            'raw': fields.StringField(analyzer='keyword'),
        }
    )
    country = fields.StringField(
        fields={
            'raw': fields.StringField(analyzer='keyword'),
        }
    )
    website = fields.StringField()

    # Location
    location = fields.GeoPointField(attr='location_field_indexing')

    class Meta:
        """Meta options."""

        model = Publisher  # The model associate with this Document
```

12.6.1.3 Sample serializer

search_indexes/serializers/book.py

```
import json

from django_elasticsearch_dsl_drf.serializers import DocumentSerializer

class PublisherDocumentSerializer(DocumentSerializer):
    """Serializer for Publisher document."""

    location = serializers.SerializerMethodField()

    class Meta:
        """Meta options."""

        # Note, that since we're using a dynamic serializer,
        # we only have to declare fields that we want to be shown. If
        # somehow, dynamic serializer doesn't work for you, either extend
        # or declare your serializer explicitly.
        fields = (
            'id',
            'name',
            'info',
            'address',
            'city',
            'state_province',
            'country',
            'website',
```

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```
        )

    def get_location(self, obj):
    """Represent location value."""
    try:
        return obj.location.to_dict()
    except:
        return {}
```

12.6.1.4 Sample view

search_indexes/views/publisher.py

```
from django_elasticsearch_dsl_drf.constants import (
    LOOKUP_FILTER_GEO_DISTANCE,
)
from django_elasticsearch_dsl_drf.filter_backends import (
    FilteringFilterBackend,
    OrderingFilterBackend,
    SearchFilterBackend,
)
from django_elasticsearch_dsl_drf.viewsets import DocumentViewSet

# Example app models
from search_indexes.documents.publisher import PublisherDocument
from search_indxes.serializers import PublisherDocumentSerializer

class PublisherDocumentView(DocumentViewSet):
    """The PublisherDocument view."""

    document = PublisherDocument
    serializer_class = PublisherDocumentSerializer
    lookup_field = 'id'
    filter_backends = [
        FilteringFilterBackend,
        OrderingFilterBackend,
        DefaultOrderingFilterBackend,
        SearchFilterBackend,
    ]
    # Define search fields
    search_fields = (
        'name',
        'info',
        'address',
        'city',
        'state_province',
        'country',
    )
    # Define filtering fields
    filter_fields = {
        'id': None,
        'name': 'name.raw',
        'city': 'city.raw',
        'state_province': 'state_province.raw',
        'country': 'country.raw',
```

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```
    }
    # Define ordering fields
    ordering_fields = {
        'id': None,
        'name': None,
        'city': None,
        'country': None,
    }
    # Specify default ordering
    ordering = ('id', 'name',)
    # Define geo-spatial filtering fields
    geo_spatial_filter_fields = {
        'location': {
            'lookups': [
                LOOKUP_FILTER_GEO_DISTANCE,
            ],
        },
    }
```

12.6.1.5 Usage example

Considering samples above, you should be able to perform the search, sorting and filtering actions described below.

12.6.1.5.1 Sample queries

12.6.1.5.1.1 Search

Query param name reserved for search is `search`. Make sure your models and documents do not have it as a field or attribute.

Multiple search terms are joined with `OR`.

Let's assume we have a number of Book items with fields `title`, `description` and `summary`.

Search in all fields

Search in all fields (`name`, `address`, `city`, `state_province` and `country`) for word "reilly".

```
http://127.0.0.1:8080/search/publisher/?search=reilly
```

Search a single term on specific field

In order to search in specific field (`name`) for term "reilly", add the field name separated with `:` to the search term.

```
http://127.0.0.1:8080/search/publisher/?search=name:reilly
```

Search for multiple terms

In order to search for multiple terms "reilly", "bloomsbury" add multiple `search` query params.

```
http://127.0.0.1:8080/search/publisher/?search=reilly&search=bloomsbury
```

Search for multiple terms in specific fields

In order to search for multiple terms "reilly", "bloomsbury" in specific fields add multiple `search` query params and field names separated with `:` to each of the search terms.

```
http://127.0.0.1:8080/search/publisher/?search=name:reilly&search=city:london
```

12.6.1.5.1.2 Filtering

Let's assume we have a number of Publisher documents with in cities (Yerevan, Groningen, Amsterdam, London).

Multiple filter terms are joined with `AND`.

Filter documents by single field

Filter documents by field (`city`) "yerevan".

```
http://127.0.0.1:8080/search/publisher/?city=yerevan
```

Filter documents by multiple fields

Filter documents by `city` "Yerevan" and "Groningen".

```
http://127.0.0.1:8080/search/publisher/?city__in=yerevan__groningen
```

Filter document by a single field

Filter documents by (field `country`) "Armenia".

```
http://127.0.0.1:8080/search/publisher/?country=armenia
```

Filter documents by multiple fields

Filter documents by multiple fields (field `city`) "Yerevan" and "Amsterdam" with use of functional `in` query filter.

```
http://127.0.0.1:8080/search/publisher/?city__in=yerevan__amsterdam
```

You can achieve the same effect by specifying multiple filters (`city`) "Yerevan" and "Amsterdam". Note, that in this case multiple filter terms are joined with `OR`.

```
http://127.0.0.1:8080/search/publisher/?city=yerevan&city=amsterdam
```

If you want the same as above, but joined with `AND`, add `__term` to each lookup.

```
http://127.0.0.1:8080/search/publisher/?city__term=education&city__term=economy
```

Filter documents by a word part of a single field

Filter documents by a part word part in single field (`city`) "ondon".

```
http://127.0.0.1:8080/search/publisher/?city__wildcard=*ondon
```

Geo-distance filtering

Filter documents by radius of 100000km from the given location.

```
http://127.0.0.1:8000/search/publishers/?location__geo_distance=100000km__12.04__-63.
↪93
```

12.6.1.5.1.3 Ordering

The − prefix means ordering should be descending.

Order documents by field (ascending)

Filter documents by field `city` (ascending).

```
http://127.0.0.1:8080/search/publisher/?search=country:armenia&ordering=city
```

Order documents by field (descending)

Filter documents by field `country` (descending).

```
http://127.0.0.1:8080/search/publisher/?ordering=-country
```

Order documents by multiple fields

If you want to order by multiple fields, use multiple ordering query params. In the example below, documents would be ordered first by field `country` (descending), then by field `city` (ascending).

```
http://127.0.0.1:8080/search/publisher/?ordering=-country&ordering=city
```

12.7 Advanced usage examples

Advanced Django REST framework integration examples.

See the example project for sample models/views/serializers.

- models
- documents
- serializers
- viewsets

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12.7.1 Example app

12.7.1.1 Sample models

books/models/publisher.py

```
import json

from django.conf import settings
from django.db import models
from django.utils.translation import gettext, gettext_lazy as _

BOOK_PUBLISHING_STATUS_PUBLISHED = 'published'
BOOK_PUBLISHING_STATUS_NOT_PUBLISHED = 'not_published'
BOOK_PUBLISHING_STATUS_IN_PROGRESS = 'in_progress'
BOOK_PUBLISHING_STATUS_CANCELLED = 'cancelled'
BOOK_PUBLISHING_STATUS_REJECTED = 'rejected'
BOOK_PUBLISHING_STATUS_CHOICES = (
    (BOOK_PUBLISHING_STATUS_PUBLISHED, "Published"),
    (BOOK_PUBLISHING_STATUS_NOT_PUBLISHED, "Not published"),
    (BOOK_PUBLISHING_STATUS_IN_PROGRESS, "In progress"),
    (BOOK_PUBLISHING_STATUS_CANCELLED, "Cancelled"),
    (BOOK_PUBLISHING_STATUS_REJECTED, "Rejected"),
)
BOOK_PUBLISHING_STATUS_DEFAULT = BOOK_PUBLISHING_STATUS_PUBLISHED


class Publisher(models.Model):
    """Publisher."""

    name = models.CharField(max_length=30)
    info = models.TextField(null=True, blank=True)
    address = models.CharField(max_length=50)
    city = models.CharField(max_length=60)
    state_province = models.CharField(max_length=30)
    country = models.CharField(max_length=50)
    website = models.URLField()
    latitude = models.DecimalField(null=True,
                                   blank=True,
                                   decimal_places=15,
                                   max_digits=19,
                                   default=0)
    longitude = models.DecimalField(null=True,
                                    blank=True,
                                    decimal_places=15,
                                    max_digits=19,
                                    default=0)

    class Meta:
        """Meta options."""
```

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```
        ordering = ["id"]

    def __str__(self):
        return self.name

    @property
    def location_field_indexing(self):
        """Location for indexing.

        Used in Elasticsearch indexing/tests of `geo_distance` native filter.
        """
        return {
            'lat': self.latitude,
            'lon': self.longitude,
        }
```

books/models/author.py

```
class Author(models.Model):
    """Author."""

    salutation = models.CharField(max_length=10)
    name = models.CharField(max_length=200)
    email = models.EmailField()
    headshot = models.ImageField(upload_to='authors', null=True, blank=True)

    class Meta:
        """Meta options."""

        ordering = ["id"]

    def __str__(self):
        return self.name
```

books/models/tag.py

```
class Tag(models.Model):
    """Simple tag model."""

    title = models.CharField(max_length=255, unique=True)

    class Meta:
        """Meta options."""

        verbose_name = _("Tag")
        verbose_name_plural = _("Tags")

    def __str__(self):
        return self.title
```

books/models/book.py

```
class Book(models.Model):
    """Book."""

    title = models.CharField(max_length=100)
```

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```
    description = models.TextField(null=True, blank=True)
    summary = models.TextField(null=True, blank=True)
    authors = models.ManyToManyField('books.Author', related_name='books')
    publisher = models.ForeignKey(Publisher, related_name='books')
    publication_date = models.DateField()
    state = models.CharField(max_length=100,
                             choices=BOOK_PUBLISHING_STATUS_CHOICES,
                             default=BOOK_PUBLISHING_STATUS_DEFAULT)
    isbn = models.CharField(max_length=100, unique=True)
    price = models.DecimalField(max_digits=10, decimal_places=2)
    pages = models.PositiveIntegerField(default=200)
    stock_count = models.PositiveIntegerField(default=30)
    tags = models.ManyToManyField('books.Tag',
                                  related_name='books',
                                  blank=True)

    class Meta:
        """Meta options."""

        ordering = ["isbn"]

    def __str__(self):
        return self.title

    @property
    def publisher_indexing(self):
        """Publisher for indexing.

        Used in Elasticsearch indexing.
        """
        if self.publisher is not None:
            return self.publisher.name

    @property
    def tags_indexing(self):
        """Tags for indexing.

        Used in Elasticsearch indexing.
        """
        return [tag.title for tag in self.tags.all()]
```

12.7.1.2 Sample document

12.7.1.2.1 Index definition

To separate dev/test/staging/production indexes, the following approach is recommended.

12.7.1.2.1.1 Settings

settings/base.py

```
# Name of the Elasticsearch index
ELASTICSEARCH_INDEX_NAMES = {
```

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```
    'search_indexes.documents.book': 'book',
    'search_indexes.documents.publisher': 'publisher',
}
```

settings/testing.py

```
# Name of the Elasticsearch index
ELASTICSEARCH_INDEX_NAMES = {
    'search_indexes.documents.book': 'test_book',
    'search_indexes.documents.publisher': 'test_publisher',
}
```

settings/production.py

```
# Name of the Elasticsearch index
ELASTICSEARCH_INDEX_NAMES = {
    'search_indexes.documents.book': 'prod_book',
    'search_indexes.documents.publisher': 'prod_publisher',
}
```

12.7.1.2.1.2 Document index

search_indexes/documents/book.py

```
from django.conf import settings
from django_elasticsearch_dsl import Document, Index, fields
from elasticsearch_dsl import analyzer

from books.models import Book

# Name of the Elasticsearch index
INDEX = Index(settings.ELASTICSEARCH_INDEX_NAMES[__name__])

# See Elasticsearch Indices API reference for available settings
INDEX.settings(
    number_of_shards=1,
    number_of_replicas=1
)

html_strip = analyzer(
    'html_strip',
    tokenizer="standard",
    filter=["standard", "lowercase", "stop", "snowball"],
    char_filter=["html_strip"]
)


@INDEX.doc_type
class BookDocument(Document):
    """Book Elasticsearch document."""

    id = fields.IntegerField(attr='id')

    title = fields.StringField(
        analyzer=html_strip,
```

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```
        fields={
            'raw': fields.StringField(analyzer='keyword'),
        }
    )

    description = fields.StringField(
        analyzer=html_strip,
        fields={
            'raw': fields.StringField(analyzer='keyword'),
        }
    )

    summary = fields.StringField(
        analyzer=html_strip,
        fields={
            'raw': fields.StringField(analyzer='keyword'),
        }
    )

    publisher = fields.StringField(
        attr='publisher_indexing',
        analyzer=html_strip,
        fields={
            'raw': fields.StringField(analyzer='keyword'),
        }
    )

    publication_date = fields.DateField()

    state = fields.StringField(
        analyzer=html_strip,
        fields={
            'raw': fields.StringField(analyzer='keyword'),
        }
    )

    isbn = fields.StringField(
        analyzer=html_strip,
        fields={
            'raw': fields.StringField(analyzer='keyword'),
        }
    )

    price = fields.FloatField()

    pages = fields.IntegerField()

    stock_count = fields.IntegerField()

    tags = fields.StringField(
        attr='tags_indexing',
        analyzer=html_strip,
        fields={
            'raw': fields.StringField(analyzer='keyword', multi=True),
            'suggest': fields.CompletionField(multi=True),
        },
        multi=True
```

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```
    )

    class Meta:
        """Meta options."""

        model = Book  # The model associate with this Document
```

12.7.1.3 Sample serializer

search_indexes/serializers/tag.py

```
import json

from rest_framework import serializers

class TagSerializer(serializers.Serializer):
    """Helper serializer for the Tag field of the Book document."""

    title = serializers.CharField()

    class Meta:
        """Meta options."""

        fields = ('title',)
        read_only_fields = ('title',)
```

search_indexes/serializers/book.py

```
class BookDocumentSerializer(serializers.Serializer):
    """Serializer for the Book document."""

    id = serializers.SerializerMethodField()

    title = serializers.CharField(read_only=True)
    description = serializers.CharField(read_only=True)
    summary = serializers.CharField(read_only=True)

    publisher = serializers.CharField(read_only=True)
    publication_date = serializers.DateField(read_only=True)
    state = serializers.CharField(read_only=True)
    isbn = serializers.CharField(read_only=True)
    price = serializers.FloatField(read_only=True)
    pages = serializers.IntegerField(read_only=True)
    stock_count = serializers.IntegerField(read_only=True)
    tags = serializers.SerializerMethodField()

    class Meta:
        """Meta options."""

        fields = (
            'id',
            'title',
            'description',
            'summary',
            'publisher',
```

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```
            'publication_date',
            'state',
            'isbn',
            'price',
            'pages',
            'stock_count',
            'tags',
        )
        read_only_fields = fields

    def get_tags(self, obj):
        """Get tags."""
        if obj.tags:
            return list(obj.tags)
        else:
            return []
```

12.7.1.4 Sample view

search_indexes/viewsets/book.py

```
from django_elasticsearch_dsl_drf.constants import (
    LOOKUP_FILTER_TERMS,
    LOOKUP_FILTER_RANGE,
    LOOKUP_FILTER_PREFIX,
    LOOKUP_FILTER_WILDCARD,
    LOOKUP_QUERY_IN,
    LOOKUP_QUERY_EXCLUDE,
)
from django_elasticsearch_dsl_drf.filter_backends import (
    FilteringFilterBackend,
    OrderingFilterBackend,
    DefaultOrderingFilterBackend,
    SearchFilterBackend,
)
from django_elasticsearch_dsl_drf.viewsets import DocumentViewSet

# Example app models
from search_indexes.documents.book import BookDocument
from search_indxes.serializers import BookDocumentSerializer


class BookDocumentView(DocumentViewSet):
    """The BookDocument view."""

    document = BookDocument
    serializer_class = BookDocumentSerializer
    lookup_field = 'id'
    filter_backends = [
        FilteringFilterBackend,
        OrderingFilterBackend,
        DefaultOrderingFilterBackend,
        SearchFilterBackend,
    ]
    # Define search fields
```

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```
    search_fields = (
        'title',
        'summary',
        'description',
    )
    # Define filtering fields
    filter_fields = {
        'id': {
            'field': '_id',
            'lookups': [
                LOOKUP_FILTER_RANGE,
                LOOKUP_QUERY_IN,
            ],
        },
        'publisher': 'publisher.raw',
        'publication_date': 'publication_date',
        'isbn': 'isbn.raw',
        'tags': {
            'field': 'tags',
            'lookups': [
                LOOKUP_FILTER_TERMS,
                LOOKUP_FILTER_PREFIX,
                LOOKUP_FILTER_WILDCARD,
                LOOKUP_QUERY_IN,
                LOOKUP_QUERY_EXCLUDE,
            ],
        },
        'tags.raw': {
            'field': 'tags.raw',
            'lookups': [
                LOOKUP_FILTER_TERMS,
                LOOKUP_FILTER_PREFIX,
                LOOKUP_FILTER_WILDCARD,
                LOOKUP_QUERY_IN,
                LOOKUP_QUERY_EXCLUDE,
            ],
        },
    }
    # Define ordering fields
    ordering_fields = {
        'id': 'id',
        'title': 'title.raw',
        'price': 'price.raw',
        'state': 'state.raw',
        'publication_date': 'publication_date',
    }
    # Specify default ordering
    ordering = ('id', 'title',)
```

12.7.1.5 Usage example

Considering samples above, you should be able to perform the search, sorting and filtering actions described below.

12.7.1.5.1 Search

Query param name reserved for search is `search`. Make sure your models and documents do not have it as a field or attribute.

Multiple search terms are joined with `OR`.

Let's assume we have a number of Book items with fields `title`, `description` and `summary`.

Search in all fields

Search in all fields (`title`, `description` and `summary`) for word "education".

```
http://127.0.0.1:8080/search/books/?search=education
```

Search a single term on specific field

In order to search in specific field (`title`) for term "education", add the field name separated with `:` to the search term.

```
http://127.0.0.1:8080/search/books/?search=title:education
```

Search for multiple terms

In order to search for multiple terms "education", "technology" add multiple `search` query params.

```
http://127.0.0.1:8080/search/books/?search=education&search=technology
```

Search for multiple terms on specific fields

In order to search for multiple terms "education", "technology" in specific fields add multiple `search` query params and field names separated with `:` to each of the search terms.

```
http://127.0.0.1:8080/search/books/?search=title:education&search=summary:technology
```

Search with boosting

It's possible to boost search fields. In order to do that change the *search_fields* definition of the *DocumentViewSet* as follows:

```
class BookDocumentView(DocumentViewSet):
    """The BookDocument view."""

    # ...

    # Define search fields
    search_fields = {
        'title': {'boost': 4},
        'summary': {'boost': 2},
        'description': None,
    }

    # Order by `_score` first.
    ordering = ('_score', 'id', 'title', 'price',)

    # ...
```

Note, that we are ordering results by *_score* first.

12.7.1.5.2 Filtering

Let's assume we have a number of Book documents with the tags (education, politics, economy, biology, climate, environment, internet, technology).

Multiple filter terms are joined with `AND`.

Filter documents by field

Filter documents by field (`state`) "published".

```
http://127.0.0.1:8080/search/books/?state=published
```

Filter documents by multiple fields

Filter documents by field (`states`) "published" and "in_progress".

```
http://127.0.0.1:8080/search/books/?state__in=published__in_progress
```

Filter document by a single field

Filter documents by (field `tag`) "education".

```
http://127.0.0.1:8080/search/books/?tag=education
```

Filter documents by multiple fields

Filter documents by multiple fields (field `tags`) "education" and "economy" with use of functional `in` query filter.

```
http://127.0.0.1:8080/search/books/?tags__in=education__economy
```

You can achieve the same effect by specifying multiple fields (`tags`) "education" and "economy". Note, that in this case multiple filter terms are joined with `OR`.

```
http://127.0.0.1:8080/search/books/?tags=education&tags=economy
```

If you want the same as above, but joined with `AND`, add `__term` to each lookup.

```
http://127.0.0.1:8080/search/books/?tags__term=education&tags__term=economy
```

Filter documents by a word part of a single field

Filter documents by a part word part in single field (`tags`). Word part should match both "technology" and "biology".

```
http://127.0.0.1:8080/search/books/?tags__wildcard=*logy
```

12.7.1.5.3 Ordering

The − prefix means ordering should be descending.

Order documents by field (ascending)

Order documents by field `price` (ascending).

```
http://127.0.0.1:8080/search/books/?search=title:lorem&ordering=price
```

Order documents by field (descending)

Order documents by field `price` (descending).

```
http://127.0.0.1:8080/search/books/?search=title:lorem&ordering=-price
```

Order documents by multiple fields

If you want to order by multiple fields, use multiple ordering query params. In the example below, documents would be ordered first by field `publication_date` (descending), then by field `price` (ascending).

```
http://127.0.0.1:8080/search/books/?search=title:lorem&ordering=-publication_date&
↪ordering=price
```

12.7.1.6 Ids filter

Filters documents that only have the provided ids.

```
http://127.0.0.1:8000/api/articles/?ids=68__64__58
```

Or, alternatively:

```
http://127.0.0.1:8000/api/articles/?ids=68&ids=64&ids=58
```

12.7.1.7 Faceted search

In order to add faceted search support, we would have to extend our view set in the following way:

search_indexes/viewsets/book.py

```
# ...

from django_elasticsearch_dsl_drf.filter_backends import (
    # ...
    FacetedSearchFilterBackend,
)

# ...

from elasticsearch_dsl import (
    DateHistogramFacet,
    RangeFacet,
    TermsFacet,
)

# ...

class BookDocumentView(DocumentViewSet):
    """The BookDocument view."""

    # ...

    filter_backends = [
        # ...
        FacetedSearchFilterBackend,
    ]

    # ...
```

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```
    faceted_search_fields = {
        'state': 'state.raw',  # By default, TermsFacet is used
        'publisher': {
            'field': 'publisher.raw',
            'facet': TermsFacet,  # But we can define it explicitly
            'enabled': True,
        },
        'publication_date': {
            'field': 'publication_date',
            'facet': DateHistogramFacet,
            'options': {
                'interval': 'year',
            }
        },
        'pages_count': {
            'field': 'pages',
            'facet': RangeFacet,
            'options': {
                'ranges': [
                    ("<10", (None, 10)),
                    ("11-20", (11, 20)),
                    ("20-50", (20, 50)),
                    (">50", (50, None)),
                ]
            }
        },
    }

    # ...
```

Note, that none of the facets is enabled by default, unless you explicitly specify it to be enabled. That means, that you will have to add a query string *facet={facet_field_name}* for each of the facets you want to see in results.

In the example below, we show results with faceted `state` and `pages_count` facets.

```
http://127.0.0.1:8000/search/books/?facet=state&facet=pages_count
```

12.7.1.8 Post-filter

The *post_filter* is very similar to the common filter. The only difference is that it doesn't affect facets. So, whatever post-filters applied, the numbers in facets will remain intact.

12.7.1.8.1 Sample view

Note: Note the `PostFilterFilteringFilterBackend` and `post_filter_fields` usage.

search_indexes/viewsets/book.py

```
# ...

from django_elasticsearch_dsl_drf.filter_backends import (
    # ...
```

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```
    PostFilterFilteringFilterBackend,
)

# ...

class BookDocumentView(DocumentViewSet):
    """The BookDocument view."""

    document = BookDocument
    serializer_class = BookDocumentSerializer
    lookup_field = 'id'
    filter_backends = [
        FilteringFilterBackend,
        OrderingFilterBackend,
        DefaultOrderingFilterBackend,
        SearchFilterBackend,
        PostFilterFilteringFilterBackend,
    ]
    # Define search fields
    search_fields = (
        'title',
        'summary',
        'description',
    )
    # Define filtering fields
    filter_fields = {
        'id': {
            'field': '_id',
            'lookups': [
                LOOKUP_FILTER_RANGE,
                LOOKUP_QUERY_IN,
            ],
        },
        'publisher': 'publisher.raw',
        'publication_date': 'publication_date',
        'isbn': 'isbn.raw',
        'tags': {
            'field': 'tags',
            'lookups': [
                LOOKUP_FILTER_TERMS,
                LOOKUP_FILTER_PREFIX,
                LOOKUP_FILTER_WILDCARD,
                LOOKUP_QUERY_IN,
                LOOKUP_QUERY_EXCLUDE,
            ],
        },
        'tags.raw': {
            'field': 'tags.raw',
            'lookups': [
                LOOKUP_FILTER_TERMS,
                LOOKUP_FILTER_PREFIX,
                LOOKUP_FILTER_WILDCARD,
                LOOKUP_QUERY_IN,
                LOOKUP_QUERY_EXCLUDE,
            ],
        },
    }
```

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```
    # Define post-filter filtering fields
    post_filter_fields = {
        'publisher_pf': 'publisher.raw',
        'isbn_pf': 'isbn.raw',
        'state_pf': 'state.raw',
        'tags_pf': {
            'field': 'tags',
            'lookups': [
                LOOKUP_FILTER_TERMS,
                LOOKUP_FILTER_PREFIX,
                LOOKUP_FILTER_WILDCARD,
                LOOKUP_QUERY_IN,
                LOOKUP_QUERY_EXCLUDE,
            ],
        },
    }
    # Define ordering fields
    ordering_fields = {
        'id': 'id',
        'title': 'title.raw',
        'price': 'price.raw',
        'state': 'state.raw',
        'publication_date': 'publication_date',
    }
    # Specify default ordering
    ordering = ('id', 'title',)
```

12.7.1.8.2 Sample queries

Filter documents by field

Filter documents by field (`state`) "published".

```
http://127.0.0.1:8080/search/books/?state_pf=published
```

Filter documents by multiple fields

Filter documents by field (`states`) "published" and "in_progress".

```
http://127.0.0.1:8080/search/books/?state_pf__in=published__in_progress
```

12.7.1.9 Geo-spatial features

For testing the boundaries the following online services might be helpful:

- geojson.io
- Bounding Box Tool

12.7.1.9.1 Filtering

Geo-distance filtering

Filter documents by radius of 100000km from the given location.

```
http://localhost:8000/search/publishers/?location__geo_distance=100000km__12.04__-63.
↪93
```

Geo-polygon filtering

Filter documents that are located in the given polygon.

```
http://localhost:8000/search/publishers/?location__geo_polygon=40,-70__30,-80__20,-90
```

Geo-bounding-box filtering

Filter documents that are located in the given bounding box.

```
http://localhost:8000/search/publishers/?location__geo_bounding_box=44.87,40.07__43.
↪87,41.11
```

12.7.1.9.2 Ordering

Geo-distance ordering

```
http://localhost:8000/search/publishers/?ordering=location__48.85__2.30__km__plane
```

12.7.1.9.3 Geo-shape

Setup

In order to be able to do all geo-shape queries, you need a GeoShapeField with 'recursive' strategy. Details about spatial strategies here : https://www.elastic.co/guide/en/elasticsearch/reference/master/geo-shape.html#spatial-strategy

```
# ...

@INDEX.doc_type
class PublisherDocument(Document):

# ...

    location_circle = fields.GeoShapeField(strategy='recursive',
                                           attr='location_circle_indexing')

# ...

class Publisher(models.Model):

# ...

    @property
    def location_circle_indexing(self):
        """
        Indexing circle geo_shape with 10km radius.
        Used in Elasticsearch indexing/tests of `geo_shape` native filter.
        """
        return {
            'type': 'circle',
            'coordinates': [self.latitude, self.longitude],
```

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```
            'radius': '10km',
        }
```

You need to use GeoSpatialFilteringFilterBackend and set the LOOKUP_FILTER_GEO_SHAPE to the geo_spatial_filter_field. (This takes place in ViewSet)

```
# ...
class PublisherDocumentViewSet(DocumentViewSet):
# ...
    filter_backends = [
        # ...
        GeoSpatialFilteringFilterBackend,
        # ...
    ]
# ...
    geo_spatial_filter_fields = {
        # ...
        'location_circle': {
            'lookups': [
                LOOKUP_FILTER_GEO_SHAPE,
            ]
        },
        # ...
    }
# ...
```

Supported shapes & queries

With this setup, we can do several types of Geo-shape queries.

Supported and tested shapes types are : point, circle, envelope

Pottentially supported but untested shapes are : multipoint and linestring

Supported and tested queries are : INTERSECTS, DISJOINT, WITHIN, CONTAINS

Shapes intersects

Interesting queries are shape intersects : this gives you all documents whose shape intersects with the shape given in query. (Should be 2 with the actual test dataset)

```
http://localhost:8000/search/publishers/?location_circle__geo_shape=49.119696,6.
↪176355__radius,15km__relation,intersects__type,circle
```

This request give you all publishers having a location_circle intersecting with the one in the query.

12.7.1.10 Suggestions

The suggest feature suggests similar looking terms based on a provided text by using a suggester.

Note: The `SuggesterFilterBackend` filter backend can be used in the `suggest` custom view action/route only. Usages outside of the are `suggest` action/route are restricted.

There are three options available here: `term`, `phrase` and `completion`.

Note: Suggestion functionality is exclusive. Once you have queried the `SuggesterFilterBackend`, the latter will transform your current search query into suggestion search query (which is very different). Therefore, always add it as the very last filter backend.

12.7.1.10.1 Completion suggesters

12.7.1.10.1.1 Document definition

To make use of suggestions, you should properly index relevant fields of your documents using `fields.CompletionField`.

search_indexes/documents/publisher.py

```
from django.conf import settings

from django_elasticsearch_dsl import Document, Index, fields

from books.models import Publisher

# Name of the Elasticsearch index
INDEX = Index(settings.ELASTICSEARCH_INDEX_NAMES[__name__])

# See Elasticsearch Indices API reference for available settings
INDEX.settings(
    number_of_shards=1,
    number_of_replicas=1
)


@INDEX.doc_type
class PublisherDocument(Document):
    """Publisher Elasticsearch document."""

    id = fields.IntegerField(attr='id')

    name = fields.StringField(
        fields={
            'raw': fields.StringField(analyzer='keyword'),
            'suggest': fields.CompletionField(),
        }
    )

    info = fields.StringField()

    address = fields.StringField(
        fields={
            'raw': fields.StringField(analyzer='keyword')
        }
    )

    city = fields.StringField(
        fields={
            'raw': fields.StringField(analyzer='keyword'),
            'suggest': fields.CompletionField(),
```

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```
        }
    )

    state_province = fields.StringField(
        fields={
            'raw': fields.StringField(analyzer='keyword'),
            'suggest': fields.CompletionField(),
        }
    )

    country = fields.StringField(
        fields={
            'raw': fields.StringField(analyzer='keyword'),
            'suggest': fields.CompletionField(),
        }
    )

    website = fields.StringField()

    # Location
    location = fields.GeoPointField(attr='location_field_indexing')

    class Meta:
        """Meta options."""

        model = Publisher  # The model associate with this Document
```

After that the `name.suggest`, `city.suggest`, `state_province.suggest` and `country.suggest` fields would be available for suggestions feature.

12.7.1.10.1.2 Serializer definition

This is how publisher serializer would look like.

search_indexes/serializers/publisher.py

```
import json

from django_elasticsearch_dsl_drf.serializers import DocumentSerializer

class PublisherDocumentSerializer(DocumentSerializer):
    """Serializer for Publisher document."""

    class Meta:
        """Meta options."""

        # Note, that since we're using a dynamic serializer,
        # we only have to declare fields that we want to be shown. If
        # somehow, dynamic serializer doesn't work for you, either extend
        # or declare your serializer explicitly.
        fields = (
            'id',
            'name',
            'info',
            'address',
```

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```
            'city',
            'state_province',
            'country',
            'website',
        )
```

12.7.1.10.1.3 ViewSet definition

In order to add suggestions support, we would have to extend our view set in the following way:

Note: You should inherit from *DocumentViewSet* instead of *BaseDocumentViewSet*.

search_indexes/viewsets/publisher.py

```
# ...

from django_elasticsearch_dsl_drf.constants import SUGGESTER_COMPLETION
from django_elasticsearch_dsl_drf.filter_backends import (
    # ...
    SuggesterFilterBackend,
)

# ...

class PublisherDocumentViewSet(DocumentViewSet):
    """The PublisherDocument view."""

    document = PublisherDocument

    # ...

    filter_backends = [
        # ...
        SuggesterFilterBackend,
    ]

    # ...

    # Suggester fields
    suggester_fields = {
        'name_suggest': {
            'field': 'name.suggest',
            'suggesters': [
                SUGGESTER_COMPLETION,
            ],
            'options': {
                'size': 20,  # Override default number of suggestions
                'skip_duplicates':True, # Whether duplicate suggestions should be␣
↪filtered out.
            },
        },
        'city_suggest': {
            'field': 'city.suggest',
```

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```
            'suggesters': [
                SUGGESTER_COMPLETION,
            ],
        },
        'state_province_suggest': {
            'field': 'state_province.suggest',
            'suggesters': [
                SUGGESTER_COMPLETION,
            ],
        },
        'country_suggest': {
            'field': 'country.suggest',
            'suggesters': [
                SUGGESTER_COMPLETION,
            ],
        },
    }

    # Geo-spatial filtering fields
    geo_spatial_filter_fields = {
        'location': {
            'lookups': [
                LOOKUP_FILTER_GEO_DISTANCE,
            ],
        },
    }
```

In the example below, we show suggestion results (auto-completion) for `country` field.

12.7.1.10.1.4 Sample requests/responses

Once you have extended your view set with `SuggesterFilterBackend` functionality, you can make use of the `suggest` custom action of your view set.

Request

```
GET http://127.0.0.1:8000/search/publishers/suggest/?country_suggest__completion=Ar
```

Response

```
{
    "_shards": {
        "failed": 0,
        "successful": 1,
        "total": 1
    },
    "country_suggest__completion": [
        {
            "options": [
                {
                    "score": 1.0,
                    "text": "Armenia"
                },
                {
                    "score": 1.0,
```

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```
                    "text": "Argentina"
                }
            ],
            "offset": 0,
            "length": 2,
            "text": "Ar"
        }
    ]
}
```

You can also have multiple suggesters per request.

Request

```
GET http://127.0.0.1:8000/search/publishers/suggest/?name_suggest__completion=B&
↪country_suggest__completion=Ar
```

Response

```
{
    "_shards": {
        "successful": 1,
        "total": 1,
        "failed": 0
    },
    "country_suggest__completion": [
        {
            "text": "Ar",
            "options": [
                {
                    "score": 1.0,
                    "text": "Armenia"
                },
                {
                    "score": 1.0,
                    "text": "Argentina"
                }
            ],
            "offset": 0,
            "length": 2
        }
    ],
    "name_suggest__completion": [
        {
            "text": "B",
            "options": [
                {
                    "score": 1.0,
                    "text": "Book Works"
                },
                {
                    "score": 1.0,
                    "text": "Brumleve LLC"
                },
                {
                    "score": 1.0,
                    "text": "Booktrope"
```

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```
                },
                {
                    "score": 1.0,
                    "text": "Borman, Post and Wendt"
                },
                {
                    "score": 1.0,
                    "text": "Book League of America"
                }
            ],
            "offset": 0,
            "length": 1
        }
    ]
}
```

12.7.1.10.1.5 Suggestions on Array/List field

Suggestions on Array/List fields (typical use case - tags, where Tag model would be a many-to-many relation to a Book model) work almost the same.

Before checking the *Sample requests/responses*, do have in mind the following:

- `Book` (see the *Sample models*)
- `BookSerializer` (see the *Sample serializer*)
- `BookDocumentView` (see the **'Sample view'_**)

12.7.1.10.1.6 Sample requests/responses

Once you have extended your view set with `SuggesterFilterBackend` functionality, you can make use of the `suggest` custom action of your view set.

Request

```
GET http://127.0.0.1:8000/search/books/suggest/?tag_suggest__completion=bio
```

Response

```
{
    "_shards": {
        "failed": 0,
        "successful": 1,
        "total": 1
    },
    "tag_suggest__completion": [
        {
            "options": [
                {
                    "score": 1.0,
                    "text": "Biography"
                },
                {
                    "score": 1.0,
```

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```
                    "text": "Biology"
                }
            ],
            "offset": 0,
            "length": 2,
            "text": "bio"
        }
    ]
}
```

12.7.1.10.1.7 Context suggesters

Note, that context suggesters only work for *completion* (thus, not for *term* or *phrase*).

12.7.1.10.1.8 *category* context

The completion suggester considers all documents in the index, but it is often desirable to serve suggestions filtered and/or boosted by some criteria. For example, you want to suggest song titles filtered by certain artists or you want to boost song titles based on their genre.

In that case, the document definition should be altered as follows:

Document definition

```
class BookDocument(Document):

    # ...

    title = StringField(
        analyzer=html_strip,
        fields={
            'raw': KeywordField(),
            'suggest': fields.CompletionField(),
            'suggest_context': fields.CompletionField(
                contexts=[
                    {
                        "name": "tag",
                        "type": "category",
                        # The `path` value shall be pointing to an
                        # existing field of current document, which shall
                        # be used for filtering.
                        "path": "tags.raw",
                    },
                ]
            ),
        }
    )

    # Tags
    tags = StringField(
        attr='tags_indexing',
        analyzer=html_strip,
        fields={
            'raw': KeywordField(multi=True),
```

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```
            'suggest': fields.CompletionField(multi=True),
        },
        multi=True
    )

    # ...
```

ViewSet should altered as follows:

ViewSet definition

```
class BookFrontendDocumentViewSet(DocumentViewSet):

    # ...

    # Suggester fields
    suggester_fields = {
        'title_suggest_context': {
            'field': 'title.suggest_context',
            'default_suggester': SUGGESTER_COMPLETION,
            # We want to be able to filter the completion filter
            # results on the following params: tag, state and publisher.
            # We also want to provide the size value.
            # See the "https://www.elastic.co/guide/en/elasticsearch/
            # reference/6.1/suggester-context.html" for the reference.
            'completion_options': {
                'category_filters': {
                    # The `tag` has been defined as `name` value in the
                    # `suggest_context` of the `BookDocument`.
                    'title_suggest_tag': 'tag',
                },
            },
            'options': {
                'size': 10,  # By default, number of results is 5.
                'skip_duplicates':True, # Whether duplicate suggestions should be␣
↪filtered out.
            },
        },
    }

    # ...
```

And finally we can narrow our suggestions as follows:

Sample request

In the example below we have filtered suggestions by tags “Art” and “Comics” having boosted “Comics” by 2.0.

```
GET http://localhost:8000/search/books-frontend/suggest/?title_suggest_context=M&
↪title_suggest_tag=Art&title_suggest_tag=Comics__2.0
```

12.7.1.10.1.9 *geo* context

Geo context allows to get suggestions within a certain distance from a specified geo location.

In that case, the document definition should be altered as follows:

Document definition

```
class AddressDocument(Document):

    # ...

    street = StringField(
        analyzer=html_strip,
        fields={
            'raw': KeywordField(),
            'suggest': fields.CompletionField(),
            'suggest_context': fields.CompletionField(
                contexts=[
                    {
                        "name": "loc",
                        "type": "geo",
                        "path": "location",
                        # You could also optionally add precision value.
                        # However, this is not required and can be
                        # specified in the query during runtime.
                        # "precision": "100km",
                    },
                ],
            ),
        }
    )

    location = fields.GeoPointField(
        attr='location_field_indexing',
    )

    # ...
```

ViewSet should altered as follows:

ViewSet definition

```
class BookFrontendDocumentViewSet(DocumentViewSet):

    # ...

    # Suggester fields
    suggester_fields = {
        'street_suggest_context': {
            'field': 'street.suggest_context',
            'default_suggester': SUGGESTER_COMPLETION,
            # We want to be able to filter the completion filter
            # results on the following params: tag, state and publisher.
            # We also want to provide the size value.
            # See the "https://www.elastic.co/guide/en/elasticsearch/
            # reference/6.1/suggester-context.html" for the reference.
            'completion_options': {
                'geo_filters': {
                    'title_suggest_loc': 'loc',
                },
            },
            'options': {
                'size': 10,  # By default, number of results is 5.
```

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```
                'skip_duplicates':True, # Whether duplicate suggestions should be␣
↪filtered out.
            },
        },
    }

    # ...
```

And finally we can narrow our suggestions as follows:

Sample request

In the example below we have filtered suggestions within 8000km distance from geo-point (-30, -100).

```
GET http://localhost:8000/search/addresses-frontend/suggest/?street_suggest_context=L&
↪title_suggest_loc=-30__-100__8000km
```

Same query with boosting (boost value 2.0):

```
GET http://localhost:8000/search/addresses-frontend/suggest/?street_suggest_context=L&
↪title_suggest_loc=-30__-100__8000km__2.0
```

12.7.1.10.2 Term and Phrase suggestions

While for the `completion` suggesters to work the `CompletionField` shall be used, the `term` and `phrase` suggesters work on common text fields.

12.7.1.10.2.1 Document definition

search_indexes/documents/book.py

```
from django.conf import settings

from django_elasticsearch_dsl import Document, Index, fields

from books.models import Book

# Name of the Elasticsearch index
INDEX = Index(settings.ELASTICSEARCH_INDEX_NAMES[__name__])

# See Elasticsearch Indices API reference for available settings
INDEX.settings(
    number_of_shards=1,
    number_of_replicas=1
)

@INDEX.doc_type
class BookDocument(Document):
    """Book Elasticsearch document."""
    # ID
    id = fields.IntegerField(attr='id')

    title = StringField(
        analyzer=html_strip,
```

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```
        fields={
            'raw': KeywordField(),
            'suggest': fields.CompletionField(),
        }
    )

    description = StringField(
        analyzer=html_strip,
        fields={
            'raw': KeywordField(),
        }
    )

    summary = StringField(
        analyzer=html_strip,
        fields={
            'raw': KeywordField()
        }
    )

    # Publisher
    publisher = StringField(
        attr='publisher_indexing',
        analyzer=html_strip,
        fields={
            'raw': KeywordField(),
            'suggest': fields.CompletionField(),
        }
    )

    # Publication date
    publication_date = fields.DateField()

    # State
    state = StringField(
        analyzer=html_strip,
        fields={
            'raw': KeywordField(),
        }
    )

    # ISBN
    isbn = StringField(
        analyzer=html_strip,
        fields={
            'raw': KeywordField(),
        }
    )

    # Price
    price = fields.FloatField()

    # Pages
    pages = fields.IntegerField()

    # Stock count
    stock_count = fields.IntegerField()
```

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```
    # Tags
    tags = StringField(
        attr='tags_indexing',
        analyzer=html_strip,
        fields={
            'raw': KeywordField(multi=True),
            'suggest': fields.CompletionField(multi=True),
        },
        multi=True
    )

    null_field = fields.StringField(attr='null_field_indexing')

    class Meta:
        """Meta options."""

        model = Book  # The model associate with this Document
```

12.7.1.10.2.2 ViewSet definition

Note: The suggester filter backends shall come as last ones.

Suggesters for the view are configured in `suggester_fields` property.

In the example below, the `title_suggest` is the name of the GET query param which points to the `title.suggest` field of the `BookDocument` document. For the `title_suggest` the allowed suggesters are `SUGGESTER_COMPLETION`, `SUGGESTER_TERM` and `SUGGESTER_PHRASE`.

URL shall be constructed in the following way:

```
/search/books/suggest/?{QUERY_PARAM}__{SUGGESTER_NAME}={VALUE}
```

Example for `completion` suggester:

```
GET http://127.0.0.1:8000/search/books/suggest/?title_suggest__completion=temp
```

However, since we have `default_suggester` defined we can skip the `__{SUGGESTER_NAME}` part (if we want `completion` suggester functionality). Thus, it might be written as short as:

```
GET http://127.0.0.1:8000/search/books/suggest/?title_suggest=temp
```

Example for `term` suggester:

```
GET http://127.0.0.1:8000/search/books/suggest/?title_suggest__term=tmeporus
```

Example for `phrase` suggester:

```
GET http://127.0.0.1:8000/search/books/suggest/?title_suggest__phrase=tmeporus
```

search_indexes/viewsets/book.py

```
from django_elasticsearch_dsl_drf.constants import (
    LOOKUP_FILTER_PREFIX,
    LOOKUP_FILTER_RANGE,
    LOOKUP_FILTER_TERMS,
    LOOKUP_FILTER_WILDCARD,
    LOOKUP_QUERY_EXCLUDE,
    LOOKUP_QUERY_GT,
    LOOKUP_QUERY_GTE,
    LOOKUP_QUERY_IN,
    LOOKUP_QUERY_IN,
    LOOKUP_QUERY_ISNULL,
    LOOKUP_QUERY_LT,
    LOOKUP_QUERY_LTE,
    SUGGESTER_COMPLETION,
    SUGGESTER_PHRASE,
    SUGGESTER_TERM,
)
from django_elasticsearch_dsl_drf.filter_backends import (
    # ...
    SuggesterFilterBackend,
)

class BookDocumentViewSet(DocumentViewSet):
    """The BookDocument view."""

    document = BookDocument
    # serializer_class = BookDocumentSerializer
    serializer_class = BookDocumentSimpleSerializer
    lookup_field = 'id'
    filter_backends = [
        FilteringFilterBackend,
        OrderingFilterBackend,
        DefaultOrderingFilterBackend,
        SearchFilterBackend,
        SuggesterFilterBackend,  # This should be the last backend
    ]
    # Define search fields
    search_fields = (
        'title',
        'description',
        'summary',
    )
    # Define filter fields
    filter_fields = {
        'id': {
            'field': 'id',
            'lookups': [
                LOOKUP_FILTER_RANGE,
                LOOKUP_QUERY_IN,
                LOOKUP_QUERY_GT,
                LOOKUP_QUERY_GTE,
                LOOKUP_QUERY_LT,
                LOOKUP_QUERY_LTE,
                LOOKUP_FILTER_TERMS,
            ],
        },
        'title': 'title.raw',
```

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```
        'publisher': 'publisher.raw',
        'publication_date': 'publication_date',
        'state': 'state.raw',
        'isbn': 'isbn.raw',
        'price': {
            'field': 'price.raw',
            'lookups': [
                LOOKUP_FILTER_RANGE,
            ],
        },
        'pages': {
            'field': 'pages',
            'lookups': [
                LOOKUP_FILTER_RANGE,
                LOOKUP_QUERY_GT,
                LOOKUP_QUERY_GTE,
                LOOKUP_QUERY_LT,
                LOOKUP_QUERY_LTE,
            ],
        },
        'stock_count': {
            # 'field': 'stock_count',
            'lookups': [
                LOOKUP_FILTER_RANGE,
                LOOKUP_QUERY_GT,
                LOOKUP_QUERY_GTE,
                LOOKUP_QUERY_LT,
                LOOKUP_QUERY_LTE,
            ],
        },
        'tags': {
            'field': 'tags',
            'lookups': [
                LOOKUP_FILTER_TERMS,
                LOOKUP_FILTER_PREFIX,
                LOOKUP_FILTER_WILDCARD,
                LOOKUP_QUERY_IN,
                LOOKUP_QUERY_EXCLUDE,
                LOOKUP_QUERY_ISNULL,
            ],
        },
        'tags.raw': {
            'field': 'tags.raw',
            'lookups': [
                LOOKUP_FILTER_TERMS,
                LOOKUP_FILTER_PREFIX,
                LOOKUP_FILTER_WILDCARD,
                LOOKUP_QUERY_IN,
                LOOKUP_QUERY_EXCLUDE,
            ],
        },
        # This has been added to test `exists` filter.
        'non_existent_field': 'non_existent_field',
        # This has been added to test `isnull` filter.
        'null_field': 'null_field',
    }
    # Define ordering fields
```

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```
    ordering_fields = {
        'id': 'id',
        'title': 'title.raw',
        'price': 'price.raw',
        'state': 'state.raw',
        'publication_date': 'publication_date',
    }
    # Specify default ordering
    ordering = ('id', 'title', 'price',)

    # Suggester fields
    suggester_fields = {
        'title_suggest': {
            'field': 'title.suggest',
            'suggesters': [
                SUGGESTER_COMPLETION,
                SUGGESTER_TERM,
                SUGGESTER_PHRASE,
            ]
            'default_suggester': SUGGESTER_COMPLETION,
            'options': {
                'size': 10,  # Number of suggestions to retrieve.
                'skip_duplicates':True, # Whether duplicate suggestions should be␣
↪filtered out.
            },
        },
        'publisher_suggest': 'publisher.suggest',
        'tag_suggest': 'tags.suggest',
        'summary_suggest': 'summary',
    }
```

Note, that by default the number of suggestions is limited to 5. If you need more suggestions, add ‘options‘ dictionary with *size* provided, as show above.

12.7.1.10.2.3 Sample requests/responses

Once you have extended your view set with `SuggesterFilterBackend` functionality, you can make use of the `suggest` custom action of your view set.

Let’s considering, that one of our books has the following text in the summary:

```
Twas brillig, and the slithy toves
Did gyre and gimble in the wabe.
All mimsy were the borogoves
And the mome raths outgrabe.

"Beware the Jabberwock, my son!
The jaws that bite, the claws that catch!
Beware the Jubjub bird, and shun
The frumious Bandersnatch!"

He took his vorpal sword in his hand,
Long time the manxome foe he sought --
So rested he by the Tumtum tree,
And stood awhile in thought.
```

12.7.1.10.2.4 Completion

Request

```
GET http://127.0.0.1:8000/search/books/suggest/?title_suggest__completion=temp
```

Response


```
{
    "_shards": {
        "successful": 1,
        "total": 1,
        "failed": 0
    },
    "title_suggest": [
        {
            "length": 4,
            "text": "temp",
            "options": [
                {
                    "text": "Tempora voluptates distinctio facere ",
                    "_index": "book",
                    "_score": 1.0,
                    "_id": "1000087",
                    "_type": "book_document",
                    "_source": {
                        "description": null,
                        "summary": "Veniam dolores recusandae maxime laborum earum.",
                        "id": 1000087,
                        "state": "cancelled",
                        "authors": [
                            "Jayden van Luyssel",
                            "Yassin van Rooij",
                            "Florian van 't Erve",
                            "Mats van Nimwegen",
                            "Wessel Keltenie"
                        ],
                        "title": "Tempora voluptates distinctio facere."
                    }
                },
                {
                    "text": "Tempore sapiente repellat alias ad corrupti",
                    "_index": "book",
                    "_score": 1.0,
                    "_id": "29",
                    "_type": "book_document"
                    "_source": {
                        "description": null,
                        "summary": "Dolores minus architecto iure fugit qui sed.",
                        "id": 29,
                        "state": "canelled",
                        "authors": [
                            "Wout van Northeim",
                            "Lenn van Vliet-Kuijpers",
                            "Tijs Mulder"
                        ],
                        "title": "Tempore sapiente repellat alias ad."
```


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```
                    },

                ],
                {
                    "text": "Temporibus exercitationem minus expedita",
                    "_index": "book",
                    "_score": 1.0,
                    "_id": "17",
                    "_type": "book_document",
                    "_source": {
                        "description": null,
                        "summary": "A laborum alias voluptates tenetur sapiente modi.
↪",
                        "id": 17,
                        "state": "canelled",
                        "authors": [
                            "Juliette Estey",
                            "Keano de Keijzer",
                            "Koen Scheffers",
                            "Florian van 't Erve",
                            "Tara Oversteeg",
                            "Mats van Nimwegen"
                        ],
                        "title": "Temporibus exercitationem minus expedita."
                    }
                }
            ],
            "offset": 0
        }
    ]
}
```


12.7.1.10.2.5 Term

Request

```
GET http://127.0.0.1:8000/search/books/suggest/?summary_suggest__term=tovse
```

Response


```
{
    "_shards": {
        "failed": 0,
        "total": 1,
        "successful": 1
    },
    "summary_suggest__term": [
        {
            "text": "tovs",
            "offset": 0,
            "options": [
                {
                    "text": "tove",
                    "score": 0.75,
                    "freq": 1
```


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```
                },
                {
                    "text": "took",
                    "score": 0.5,
                    "freq": 1
                },
                {
                    "text": "twas",
                    "score": 0.5,
                    "freq": 1
                }
            ],
            "length": 5
        }
    ]
}
```

12.7.1.10.2.6 Phrase

Request

```
GET http://127.0.0.1:8000/search/books/suggest/?summary_suggest__phrase=slith%20tovs
```

Response

```
{
    "summary_suggest__phrase": [
        {
            "text": "slith tovs",
            "offset": 0,
            "options": [
                {
                    "text": "slithi tov",
                    "score": 0.00083028956
                }
            ],
            "length": 10
        }
    ],
    "_shards": {
        "failed": 0,
        "total": 1,
        "successful": 1
    }
}
```

12.7.1.11 Functional suggestions

If native suggestions are not good enough for you, use functional suggesters.

Configuration is very similar to native suggesters.

12.7.1.11.1 Document definition

Obviously, different filters require different approaches. For instance, when using functional completion prefix filter, the best approach is to use keyword field of the Elasticsearch. While for match completion, Ngram fields work really well.

The following example indicates Ngram analyzer/filter usage.

search_indexes/documents/book.py

```
from django.conf import settings
from django_elasticsearch_dsl import Document, Index, fields

from elasticsearch_dsl import analyzer
from elasticsearch_dsl.analysis import token_filter

from books.models import Book

edge_ngram_completion_filter = token_filter(
    'edge_ngram_completion_filter',
    type="edge_ngram",
    min_gram=1,
    max_gram=20
)


edge_ngram_completion = analyzer(
    "edge_ngram_completion",
    tokenizer="standard",
    filter=["lowercase", edge_ngram_completion_filter]
)

INDEX = Index(settings.ELASTICSEARCH_INDEX_NAMES[__name__])

# See Elasticsearch Indices API reference for available settings
INDEX.settings(
    number_of_shards=1,
    number_of_replicas=1
)

@INDEX.doc_type
class BookDocument(Document):
    """Book Elasticsearch document."""

    # In different parts of the code different fields are used. There are
    # a couple of use cases: (1) more-like-this functionality, where `title`,
    # `description` and `summary` fields are used, (2) search and filtering
    # functionality where all of the fields are used.

    # ID
    id = fields.IntegerField(attr='id')

    # ****************************************************************
    # ********************** Main data fields for search ***************
    # ****************************************************************

    title = StringField(
        analyzer=html_strip,
```

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```
        fields={
            'raw': KeywordField(),
            'suggest': fields.CompletionField(),
            'edge_ngram_completion': StringField(
                analyzer=edge_ngram_completion
            ),
        }
    )

    # ...

    class Meta:
        """Meta options."""

        model = Book  # The model associate with this Document
```

12.7.1.11.2 ViewSet definition

Note: The suggester filter backends shall come as last ones.

Functional suggesters for the view are configured in `functional_suggester_fields` property.

In the example below, the `title_suggest` is the name of the GET query param which points to the `title.raw` field of the `BookDocument` document. For the `title_suggest` the allowed suggester is `FUNCTIONAL_SUGGESTER_COMPLETION_PREFIX`. For Ngram match we have the `title_suggest_match` field, which points to `title.edge_ngram_completion` field of the same document. For `title_suggest_match` the allowed suggester is `FUNCTIONAL_SUGGESTER_COMPLETION_MATCH`.

URL shall be constructed in the following way:

```
/search/books/functional_suggest/?{QUERY_PARAM}__{SUGGESTER_NAME}={VALUE}
```

Example for `completion_prefix` suggester:

```
GET http://localhost:8000/search/books/functional_suggest/?title_suggest_prefix__
↪completion_prefix=Temp
```

However, since we have `default_suggester` defined we can skip the `__{SUGGESTER_NAME}` part (if we want `completion_prefix` suggester functionality). Thus, it might be written as short as:

```
GET http://localhost:8000/search/books/functional_suggest/?title_suggest_prefix=Temp
```

Example for `completion_match` suggester:

```
GET http://localhost:8000/search/books/functional_suggest/?title_suggest_match__
↪completion_match=Temp
```

However, since we have `default_suggester` defined we can skip the `__{SUGGESTER_NAME}` part (if we want `completion_match` suggester functionality). Thus, it might be written as short as:

```
GET http://localhost:8000/search/books/functional_suggest/?title_suggest_match=Temp
```

search_indexes/viewsets/book.py

```
from django_elasticsearch_dsl_drf.constants import (
    # ...
    FUNCTIONAL_SUGGESTER_COMPLETION_PREFIX,
    FUNCTIONAL_SUGGESTER_COMPLETION_MATCH,
)
from django_elasticsearch_dsl_drf.filter_backends import (
    # ...
    SuggesterFilterBackend,
)

class BookDocumentViewSet(DocumentViewSet):
    """The BookDocument view."""

    document = BookDocument
    serializer_class = BookDocumentSerializer
    lookup_field = 'id'
    filter_backends = [
        FilteringFilterBackend,
        IdsFilterBackend,
        OrderingFilterBackend,
        DefaultOrderingFilterBackend,
        SearchFilterBackend,
        FacetedSearchFilterBackend,
        HighlightBackend,
        FunctionalSuggesterFilterBackend,  # This should come as last
    ]

    # ...

    # Functional suggester fields
    functional_suggester_fields = {
        'title_suggest': {
            'field': 'title.raw',
            'suggesters': [
                FUNCTIONAL_SUGGESTER_COMPLETION_PREFIX,
            ],
            'default_suggester': FUNCTIONAL_SUGGESTER_COMPLETION_PREFIX,
            'options': {
                'size': 25,
                'from': 0,
            }
        },
        'title_suggest_match': {
            'field': 'title.edge_ngram_completion',
            'suggesters': [FUNCTIONAL_SUGGESTER_COMPLETION_MATCH],
            'default_suggester': FUNCTIONAL_SUGGESTER_COMPLETION_MATCH,
        }
    }
```

Note: Note, that in `functional_suggester_fields['title_suggest']['options']` there are two params: `size` and `from`. They control the query size and the offset of the generated functional suggest query.

12.7.1.12 Highlighting

Highlighters enable you to get highlighted snippets from one or more fields in your search results so you can show users where the query matches are.

ViewSet definition

```
from django_elasticsearch_dsl_drf.viewsets import DocumentViewSet
from django_elasticsearch_dsl_drf.filter_backends import (
    # ...
    HighlightBackend,
)

from ..documents import BookDocument
from ..serializers import BookDocumentSimpleSerializer


class BookDocumentViewSet(BaseDocumentViewSet):
"""The BookDocument view."""

    document = BookDocument
    # serializer_class = BookDocumentSerializer
    serializer_class = BookDocumentSimpleSerializer
    lookup_field = 'id'
    filter_backends = [
        # ...
        HighlightBackend,
    ]

    # ...

    # Define highlight fields
    highlight_fields = {
        'title': {
            'enabled': True,
            'options': {
                'pre_tags': ["<b>"],
                'post_tags': ["</b>"],
            }
        },
        'summary': {
            'options': {
                'fragment_size': 50,
                'number_of_fragments': 3
            }
        },
        'description': {},
    }

    # ...
```

Request

```
GET http://127.0.0.1:8000/search/books/?search=optimisation&highlight=title&
↪highlight=summary
```

Response

```
{
    "count": 1,
    "next": null,
    "previous": null,
    "facets": {
        "_filter_publisher": {
            "publisher": {
                "buckets": [
                    {
                        "key": "Self published",
                        "doc_count": 1
                    }
                ],
                "doc_count_error_upper_bound": 0,
                "sum_other_doc_count": 0
            },
            "doc_count": 1
        }
    },
    "results": [
        {
            "id": 999999,
            "title": "Performance optimisation",
            "description": null,
            "summary": "Ad animi adipisci libero facilis iure totam
                        impedit. Facilis maiores quae qui magnam dolores.
                        Veritatis quia amet porro voluptates iure quod
                        impedit. Dolor voluptatibus maiores at libero
                        magnam.",
            "authors": [
                "Artur Barseghyan"
            ],
            "publisher": "Self published",
            "publication_date": "1981-04-29",
            "state": "cancelled",
            "isbn": "978-1-7372176-0-2",
            "price": 40.51,
            "pages": 162,
            "stock_count": 30,
            "tags": [
                "Guide",
                "Poetry",
                "Fantasy"
            ],
            "highlight": {
                "title": [
                    "Performance <b>optimisation</b>"
                ]
            },
            "null_field": null
        }
    ]
}
```

12.7.1.13 Pagination

12.7.1.13.1 Page number pagination

By default, the `PageNumberPagination` class is used on all view sets which inherit from `DocumentViewSet`.

Example:

```
http://127.0.0.1:8000/search/books/?page=4
http://127.0.0.1:8000/search/books/?page=4&page_size=100
```

12.7.1.13.2 Limit/offset pagination

In order to use a different `pagination_class`, for instance the `LimitOffsetPagination`, specify it explicitly in the view.

search_indexes/viewsets/book.py

```
# ...

from django_elasticsearch_dsl_drf.pagination import LimitOffsetPagination

# ...

class BookDocumentView(DocumentViewSet):
    """The BookDocument view."""

    # ...

    pagination_class = LimitOffsetPagination

    # ...
```

Example:

```
http://127.0.0.1:8000/search/books/?limit=100
http://127.0.0.1:8000/search/books/?offset=400&limit=100
```

12.7.1.13.3 Customisations

If you want to add additional data to the paginated response, for instance, the page size, subclass the correspondent pagination class and add your modifications in the `get_paginated_response_context` method as follows:

```
from django_elasticsearch_dsl_drf.pagination import PageNumberPagination


class CustomPageNumberPagination(PageNumberPagination):
    """Custom page number pagination."""

    def get_paginated_response_context(self, data):
        __data = super(
            CustomPageNumberPagination,
            self
        ).get_paginated_response_context(data)
```

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```
        __data.append(
            ('current_page', int(self.request.query_params.get('page', 1)))
        )
        __data.append(
            ('page_size', self.get_page_size(self.request))
        )

        return sorted(__data)
```

Same applies to the customisations of the `LimitOffsetPagination`.

12.8 Nested fields usage examples

Advanced Django REST framework integration examples with object/nested fields.

See the example project for sample models/views/serializers.

- models
- documents
- serializers
- viewsets

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- *Sample view*
- *Sample request*
- *Filtering*
- *Ordering*

* *Suggestions*
* *Nested aggregations/facets*

12.8.1 Example app

12.8.1.1 Sample models

books/models/continent.py

```
from django.db import models

class Continent(models.Model):
    """Continent."""

    name = models.CharField(max_length=255)
    info = models.TextField(null=True, blank=True)
    latitude = models.DecimalField(
        null=True,
        blank=True,
        decimal_places=15,
        max_digits=19,
        default=0
    )
    longitude = models.DecimalField(
        null=True,
        blank=True,
        decimal_places=15,
        max_digits=19,
        default=0
    )

    class Meta:
        """Meta options."""

        ordering = ["id"]

    def __str__(self):
        return self.name

    @property
    def location_field_indexing(self):
        """Location for indexing.

        Used in Elasticsearch indexing/tests of `geo_distance` native filter.
        """
        return {
            'lat': self.latitude,
```

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```
            'lon': self.longitude,
        }
```

books/models/country.py

```
class Country(models.Model):
    """Country."""

    name = models.CharField(max_length=255)
    info = models.TextField(null=True, blank=True)
    continent = models.ForeignKey(
        'books.Continent',
        on_delete=models.CASCADE
    )
    latitude = models.DecimalField(
        null=True,
        blank=True,
        decimal_places=15,
        max_digits=19,
        default=0
    )
    longitude = models.DecimalField(
        null=True,
        blank=True,
        decimal_places=15,
        max_digits=19,
        default=0
    )

    class Meta:
        """Meta options."""

        ordering = ["id"]

    def __str__(self):
        return self.name

    @property
    def location_field_indexing(self):
        """Location for indexing.

        Used in Elasticsearch indexing/tests of `geo_distance` native
        filter.
        """
        return {
            'lat': self.latitude,
            'lon': self.longitude,
        }
```

books/models/city.py

```
class City(models.Model):
    """City."""

    name = models.CharField(max_length=255)
    info = models.TextField(null=True, blank=True)
    country = models.ForeignKey('books.Country', on_delete=models.CASCADE)
```

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```
    latitude = models.DecimalField(
        null=True,
        blank=True,
        decimal_places=15,
        max_digits=19,
        default=0
    )
    longitude = models.DecimalField(
        null=True,
        blank=True,
        decimal_places=15,
        max_digits=19,
        default=0
    )

    class Meta:
        """Meta options."""

        ordering = ["id"]

    def __str__(self):
        return self.name

    @property
    def location_field_indexing(self):
        """Location for indexing.

        Used in Elasticsearch indexing/tests of `geo_distance` native
        filter.
        """
        return {
            'lat': self.latitude,
            'lon': self.longitude,
        }
```

books/models/address.py

```
from django.db import models
from django_elasticsearch_dsl_drf.wrappers import dict_to_obj

class Address(models.Model):
    """Address."""

    street = models.CharField(max_length=255)
    house_number = models.CharField(max_length=60)
    appendix = models.CharField(max_length=30, null=True, blank=True)
    zip_code = models.CharField(max_length=60)
    city = models.ForeignKey('books.City', on_delete=models.CASCADE)
    latitude = models.DecimalField(
        null=True,
        blank=True,
        decimal_places=15,
        max_digits=19,
        default=0
    )
    longitude = models.DecimalField(
        null=True,
```

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```
        blank=True,
        decimal_places=15,
        max_digits=19,
        default=0
    )

    class Meta:
        """Meta options."""

        ordering = ["id"]

    def __str__(self):
        return "{} {} {} {}".format(
            self.street,
            self.house_number,
            self.appendix,
            self.zip_code
        )

    @property
    def location_field_indexing(self):
        """Location for indexing.

        Used in Elasticsearch indexing/tests of `geo_distance` native
        filter.
        """
        return {
            'lat': self.latitude,
            'lon': self.longitude,
        }

    @property
    def country_indexing(self):
        """Country data (nested) for indexing.

        Example:

        >>> mapping = {
        >>>     'country': {
        >>>         'name': 'Netherlands',
        >>>         'city': {
        >>>             'name': 'Amsterdam',
        >>>         }
        >>>     }
        >>> }

        :return:
        """
        wrapper = dict_to_obj({
            'name': self.city.country.name,
            'city': {
                'name': self.city.name
            }
        })

        return wrapper
```

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```
    @property
    def continent_indexing(self):
        """Continent data (nested) for indexing.

        Example:

        >>> mapping = {
        >>>     'continent': {
        >>>         'name': 'Asia',
        >>>         'country': {
        >>>             'name': 'Netherlands',
        >>>             'city': {
        >>>                 'name': 'Amsterdam',
        >>>             }
        >>>         }
        >>>     }
        >>> }

        :return:
        """
        wrapper = dict_to_obj({
            'name': self.city.country.continent.name,
            'country': {
                'name': self.city.country.name,
                'city': {
                    'name': self.city.name,
                }
            }
        })

        return wrapper
```

12.8.1.2 Sample document

12.8.1.2.1 Index definition

To separate dev/test/staging/production indexes, the following approach is recommended.

12.8.1.2.1.1 Settings

settings/base.py

```
# Name of the Elasticsearch index
ELASTICSEARCH_INDEX_NAMES = {
    'search_indexes.documents.address': 'address',
}
```

settings/testing.py

```
# Name of the Elasticsearch index
ELASTICSEARCH_INDEX_NAMES = {
    'search_indexes.documents.address': 'test_address',
}
```

settings/production.py

```
# Name of the Elasticsearch index
ELASTICSEARCH_INDEX_NAMES = {
    'search_indexes.documents.address': 'prod_address',
}
```

12.8.1.2.1.2 Document index

search_indexes/documents/address.py

```
from django.conf import settings

from django_elasticsearch_dsl import Document, Index, fields
from django_elasticsearch_dsl_drf.compat import KeywordField, StringField

from books.models import Address

from .analyzers import html_strip

INDEX = Index(settings.ELASTICSEARCH_INDEX_NAMES[__name__])

# See Elasticsearch Indices API reference for available settings
INDEX.settings(
    number_of_shards=1,
    number_of_replicas=1
)

@INDEX.doc_type
class AddressDocument(Document):
    """Address Elasticsearch document."""

    # In different parts of the code different fields are used. There are
    # a couple of use cases: (1) more-like-this functionality, where `title`,
    # `description` and `summary` fields are used, (2) search and filtering
    # functionality where all of the fields are used.

    # ID
    id = fields.IntegerField(attr='id')

    # ********************************************************************
    # ********************** Main data fields for search ***************
    # ********************************************************************

    street = StringField(
        analyzer=html_strip,
        fields={
            'raw': KeywordField(),
            'suggest': fields.CompletionField(),
        }
    )

    house_number = StringField(analyzer=html_strip)

    appendix = StringField(analyzer=html_strip)
```

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```
    zip_code = StringField(
        analyzer=html_strip,
        fields={
            'raw': KeywordField(),
            'suggest': fields.CompletionField(),
        }
    )

    # ************************************************************************
    # ********** Additional fields for search and filtering **************
    # ************************************************************************

    # City object
    city = fields.ObjectField(
        properties={
            'name': StringField(
                analyzer=html_strip,
                fields={
                    'raw': KeywordField(),
                    'suggest': fields.CompletionField(),
                }
            ),
            'info': StringField(analyzer=html_strip),
            'location': fields.GeoPointField(attr='location_field_indexing'),
            'country': fields.ObjectField(
                properties={
                    'name': StringField(
                        analyzer=html_strip,
                        fields={
                            'raw': KeywordField(),
                            'suggest': fields.CompletionField(),
                        }
                    ),
                    'info': StringField(analyzer=html_strip),
                    'location': fields.GeoPointField(
                        attr='location_field_indexing'
                    )
                }
            )
        }
    )

    # Country object
    country = fields.NestedField(
        attr='country_indexing',
        properties={
            'name': StringField(
                analyzer=html_strip,
                fields={
                    'raw': KeywordField(),
                    'suggest': fields.CompletionField(),
                }
            ),
            'city': fields.ObjectField(
                properties={
                    'name': StringField(
                        analyzer=html_strip,
```

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```
                        fields={
                            'raw': KeywordField(),
                        },
                    ),
                },
            ),
        },
    )

    # Continent object
    continent = fields.NestedField(
        attr='continent_indexing',
        properties={
            'name': StringField(
                analyzer=html_strip,
                fields={
                    'raw': KeywordField(),
                    'suggest': fields.CompletionField(),
                }
            ),
            'country': fields.NestedField(
                properties={
                    'name': StringField(
                        analyzer=html_strip,
                        fields={
                            'raw': KeywordField(),
                        }
                    ),
                    'city': fields.NestedField(
                        properties={
                            'name': StringField(
                                analyzer=html_strip,
                                fields={
                                    'raw': KeywordField(),
                                }
                            )
                        }
                    )
                }
            )
        }
    )

    location = fields.GeoPointField(attr='location_field_indexing')

    class Meta:
        """Meta options."""

        model = Address  # The model associate with this Document
```

12.8.1.3 Sample serializer

search_indexes/serializers/address.py

```
from django_elasticsearch_dsl_drf.serializers import DocumentSerializer

from ..documents import AddressDocument

class AddressDocumentSerializer(DocumentSerializer):
    """Serializer for address document."""

    class Meta:
        """Meta options."""

        document = AddressDocument
        fields = (
            'id',
            'street',
            'house_number',
            'appendix',
            'zip_code',
            'city',
            'country',
            'continent',
            'location',
        )
```

12.8.1.4 Sample view

search_indexes/viewsets/address.py

```
from django_elasticsearch_dsl_drf.constants import (
    LOOKUP_FILTER_GEO_DISTANCE,
    LOOKUP_FILTER_GEO_POLYGON,
    LOOKUP_FILTER_GEO_BOUNDING_BOX,
    SUGGESTER_COMPLETION,
)
from django_elasticsearch_dsl_drf.filter_backends import (
    DefaultOrderingFilterBackend,
    FacetedSearchFilterBackend,
    FilteringFilterBackend,
    GeoSpatialFilteringFilterBackend,
    GeoSpatialOrderingFilterBackend,
    NestedFilteringFilterBackend,
    OrderingFilterBackend,
    SearchFilterBackend,
    SuggesterFilterBackend,
)
from django_elasticsearch_dsl_drf.pagination import LimitOffsetPagination
from django_elasticsearch_dsl_drf.viewsets import DocumentViewSet

from ..documents import AddressDocument
from ..serializers import AddressDocumentSerializer

class AddressDocumentViewSet(DocumentViewSet):
    """The AddressDocument view."""

    document = AddressDocument
    serializer_class = AddressDocumentSerializer
    lookup_field = 'id'
```

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```
    filter_backends = [
        FacetedSearchFilterBackend,
        FilteringFilterBackend,
        OrderingFilterBackend,
        SearchFilterBackend,
        GeoSpatialFilteringFilterBackend,
        GeoSpatialOrderingFilterBackend,
        NestedFilteringFilterBackend,
        DefaultOrderingFilterBackend,
        SuggesterFilterBackend,
    ]
    pagination_class = LimitOffsetPagination
    # Define search fields
    search_fields = (
        'street',
        'zip_code',
        'city.name',
        'city.country.name',
    )
    # Define filtering fields
    filter_fields = {
        'id': None,
        'city': 'city.name.raw',
    }
    # Nested filtering fields
    nested_filter_fields = {
        'continent_country': {
            'field': 'continent.country.name.raw',
            'path': 'continent.country',
        },
        'continent_country_city': {
            'field': 'continent.country.city.name.raw',
            'path': 'continent.country.city',
        },
    }
    # Define geo-spatial filtering fields
    geo_spatial_filter_fields = {
        'location': {
            'lookups': [
                LOOKUP_FILTER_GEO_BOUNDING_BOX,
                LOOKUP_FILTER_GEO_DISTANCE,
                LOOKUP_FILTER_GEO_POLYGON,

            ],
        },
    }
    # Define ordering fields
    ordering_fields = {
        'id': None,
        'street': None,
        'city': 'city.name.raw',
        'country': 'city.country.name.raw',
        'zip_code': None,
    }
    # Define ordering fields
    geo_spatial_ordering_fields = {
        'location': None,
```

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```
    }
    # Specify default ordering
    ordering = (
        'id',
        'street.raw',
        'city.name.raw',
    )
    # Suggester fields
    suggester_fields = {
        'street_suggest': {
            'field': 'street.suggest',
            'suggesters': [
                SUGGESTER_COMPLETION,
            ],
        },
        'city_suggest': {
            'field': 'city.name.suggest',
            'suggesters': [
                SUGGESTER_COMPLETION,
            ],
        },
        'country_suggest': {
            'field': 'city.country.name.suggest',
            'suggesters': [
                SUGGESTER_COMPLETION,
            ],
        }
    }

    # Facets
    faceted_search_fields = {
        'city': {
            'field': 'city.name.raw',
            'enabled': True,
        },
        'country': {
            'field': 'city.country.name.raw',
            'enabled': True,
        },
    }
```

12.8.1.5 Usage example

Considering samples above, you should be able to perform the search, sorting and filtering actions described below.

12.8.1.5.1 Sample queries

12.8.1.5.1.1 Search

Just a couple of examples, because searching in nested fields doesn't differ from searching in simple fields.

Search in all fields

Search in all fields (`street`, `zip_code` and `city`, `country`) for word "Picadilly".

```
http://127.0.0.1:8000/search/addresses/?search=Piccadilly
```

Search a single term on specific field

In order to search in specific field (`country`) for term "Armenia", add the field name separated with `|` to the search term.

```
http://127.0.0.1:8000/search/addresses/?search=city.country.name:Armenia
```

12.8.1.5.1.2 Nested filtering

Filter documents by nested field

Filter documents by field (`continent.country`) "Armenia".

```
http://127.0.0.1:8000/search/addresses/?continent_country=Armenia
```

Filter documents by field (`continent.country.city`) "Amsterdam".

```
http://127.0.0.1:8000/search/addresses/?continent_country_city=Amsterdam
```

12.8.1.5.1.3 Nested search

For nested search, let's have another example.

12.8.1.5.1.4 Sample models

books/models/city.py

```
from django.db import models

class City(models.Model):
    """City."""

    name = models.CharField(max_length=255)
    info = models.TextField(null=True, blank=True)
    country = models.ForeignKey('books.Country')
    latitude = models.DecimalField(null=True,
                                   blank=True,
                                   decimal_places=15,
                                   max_digits=19,
                                   default=0)
    longitude = models.DecimalField(null=True,
                                    blank=True,
                                    decimal_places=15,
                                    max_digits=19,
                                    default=0)
```

books/models/country.py

```
from django.db import models

class Country(models.Model):
```

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```
    """Country."""

    name = models.CharField(max_length=255)
    info = models.TextField(null=True, blank=True)
    latitude = models.DecimalField(null=True,
                                   blank=True,
                                   decimal_places=15,
                                   max_digits=19,
                                   default=0)
    longitude = models.DecimalField(null=True,
                                    blank=True,
                                    decimal_places=15,
                                    max_digits=19,
                                    default=0)
```

12.8.1.5.1.5 Sample document

documents/city.py

```
from django.conf import settings

from django_elasticsearch_dsl import Document, Index, fields
from django_elasticsearch_dsl_drf.compat import KeywordField, StringField

from books.models import City

from .analyzers import html_strip

INDEX = Index(settings.ELASTICSEARCH_INDEX_NAMES[__name__])

# See Elasticsearch Indices API reference for available settings
INDEX.settings(
    number_of_shards=1,
    number_of_replicas=1
)


@INDEX.doc_type
class CityDocument(Document):
    """City Elasticsearch document.

    This document has been created purely for testing out complex fields.
    """

    # ID
    id = fields.IntegerField(attr='id')

    # ******************************************************************
    # ********************* Main data fields for search ****************
    # ******************************************************************

    name = StringField(
        analyzer=html_strip,
        fields={
            'raw': KeywordField(),
```

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```
            'suggest': fields.CompletionField(),
        }
    )

    info = StringField(analyzer=html_strip)

    # ********************************************************************
    # ************* Nested fields for search and filtering *************
    # ********************************************************************

    # City object
    country = fields.NestedField(
        properties={
            'name': StringField(
                analyzer=html_strip,
                fields={
                    'raw': KeywordField(),
                    'suggest': fields.CompletionField(),
                }
            ),
            'info': StringField(analyzer=html_strip),
            'location': fields.GeoPointField(attr='location_field_indexing'),
        }
    )

    location = fields.GeoPointField(attr='location_field_indexing')

    # ********************************************************************
    # ********** Other complex fields for search and filtering **********
    # ********************************************************************

    boolean_list = fields.ListField(
        StringField(attr='boolean_list_indexing')
    )

    datetime_list = fields.ListField(
        StringField(attr='datetime_list_indexing')
    )
    float_list = fields.ListField(
        StringField(attr='float_list_indexing')
    )
    integer_list = fields.ListField(
        StringField(attr='integer_list_indexing')
    )

    class Meta:
        """Meta options."""

        model = City  # The model associate with this Document
```

12.8.1.5.1.6 Sample view

viewsets/city.py

```
from django_elasticsearch_dsl_drf.constants import (
    LOOKUP_FILTER_GEO_DISTANCE,
    LOOKUP_FILTER_GEO_POLYGON,
    LOOKUP_FILTER_GEO_BOUNDING_BOX,
    SUGGESTER_COMPLETION,
)
from django_elasticsearch_dsl_drf.filter_backends import (
    FilteringFilterBackend,
    DefaultOrderingFilterBackend,
    OrderingFilterBackend,
    SearchFilterBackend,
    SuggesterFilterBackend,
    GeoSpatialFilteringFilterBackend,
    GeoSpatialOrderingFilterBackend,
)
from django_elasticsearch_dsl_drf.pagination import LimitOffsetPagination
from django_elasticsearch_dsl_drf.viewsets import DocumentViewSet

from ..documents import CityDocument
from ..serializers import CityDocumentSerializer

class CityDocumentViewSet(BaseDocumentViewSet):
    """The CityDocument view."""

    document = CityDocument
    serializer_class = CityDocumentSerializer
    lookup_field = 'id'
    filter_backends = [
        FilteringFilterBackend,
        OrderingFilterBackend,
        SearchFilterBackend,
        GeoSpatialFilteringFilterBackend,
        GeoSpatialOrderingFilterBackend,
        DefaultOrderingFilterBackend,
        SuggesterFilterBackend,
    ]
    pagination_class = LimitOffsetPagination
    # Define search fields
    search_fields = (
        'name',
        'info',
    )

    search_nested_fields = {
        'country': {
            'path': 'country',
            'fields': ['name'],
        }
    }

    # Define filtering fields
    filter_fields = {
        'id': None,
        'name': 'name.raw',
        'country': 'country.name.raw',
    }
    # Define geo-spatial filtering fields
```

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```
    geo_spatial_filter_fields = {
        'location': {
            'lookups': [
                LOOKUP_FILTER_GEO_BOUNDING_BOX,
                LOOKUP_FILTER_GEO_DISTANCE,
                LOOKUP_FILTER_GEO_POLYGON,

            ],
        },
    }
    # Define ordering fields
    ordering_fields = {
        'id': None,
        'name': None,
        'country': 'country.name.raw',
    }
    # Define ordering fields
    geo_spatial_ordering_fields = {
        'location': None,
    }
    # Specify default ordering
    ordering = (
        'id',
        'name.raw',
        'country.name.raw',
    )

    # Suggester fields
    suggester_fields = {
        'name_suggest': {
            'field': 'name.suggest',
            'suggesters': [
                SUGGESTER_COMPLETION,
            ],
        },
        'country_suggest': {
            'field': 'country.name.suggest',
            'suggesters': [
                SUGGESTER_COMPLETION,
            ],
        }
    }
```

12.8.1.5.1.7 Sample request

Request

```
GET http://127.0.0.1:8000/search/cities/?search=Switzerland
```

12.8.1.5.1.8 Filtering

Filter documents by field

Filter documents by field (`city`) "Dublin".

```
http://127.0.0.1:8000/search/addresses/?city=Dublin
```

Filter documents by multiple fields

Filter documents by field (`states`) "published" and "in_progress".

```
http://127.0.0.1:8000/search/addresses/?city__in=Yerevan__Dublin
```

12.8.1.5.1.9 Ordering

The − prefix means ordering should be descending.

Order documents by field (descending)

Order documents by field `country` (ascending).

```
http://127.0.0.1:8000/search/addresses/?ordering=-country
```

12.8.1.6 Suggestions

The suggest feature suggests similar looking terms based on a provided text by using a suggester.

Note: The `SuggesterFilterBackend` filter backend can be used in the `suggest` custom view action/route only. Usages outside of the are `suggest` action/route are restricted.

There are three options available here: `term`, `phrase` and `completion`.

Note: Suggestion functionality is exclusive. Once you have queried the `SuggesterFilterBackend`, the latter will transform your current search query into suggestion search query (which is very different). Therefore, always add it as the very last filter backend.

Suggest completion for field `country`.

```
http://127.0.0.1:8000/search/addresses/suggest/?country_suggest__completion=Ar
```

Suggest completion for field `city`.

```
http://127.0.0.1:8000/search/addresses/suggest/?city_suggest__completion=Ye
```

12.8.1.7 Nested aggregations/facets

At the moment, nested aggregations/facets are not supported out of the box. Out of the box support will surely land in the package one day, but for now, there's a simple and convenient way of implementing nested aggregations/facets with minimal efforts. Consider the following example.

search_indexes/backends/nested_continents.py

```
from django_elasticsearch_dsl_drf.filter_backends.mixins import (
    FilterBackendMixin,
)
```

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```
from rest_framework.filters import BaseFilterBackend

class NestedContinentsBackend(BaseFilterBackend, FilterBackendMixin):
    """Adds nesting to continents."""

    faceted_search_param = 'nested_facet'

    def get_faceted_search_query_params(self, request):
        """Get faceted search query params.

        :param request: Django REST framework request.
        :type request: rest_framework.request.Request
        :return: List of search query params.
        :rtype: list
        """
        query_params = request.query_params.copy()
        return query_params.getlist(self.faceted_search_param, [])

    def filter_queryset(self, request, queryset, view):
        """Filter the queryset.
        :param request: Django REST framework request.
        :param queryset: Base queryset.
        :param view: View.
        :type request: rest_framework.request.Request
        :type queryset: elasticsearch_dsl.search.Search
        :type view: rest_framework.viewsets.ReadOnlyModelViewSet
        :return: Updated queryset.
        :rtype: elasticsearch_dsl.search.Search
        """
        facets = self.get_faceted_search_query_params(request)

        if 'continent' in facets:
            queryset \
                .aggs\
                .bucket('continents',
                        'nested',
                        path='continent') \
                .bucket('continent_name',
                        'terms',
                        field='continent.name.raw',
                        size=10) \
                .bucket('counties',
                        'nested',
                        path='continent.country') \
                .bucket('country_name',
                        'terms',
                        field='continent.country.name.raw',
                        size=10) \
                .bucket('city',
                        'nested',
                        path='continent.country.city') \
                .bucket('city_name',
                        'terms',
                        field='continent.country.city.name.raw',
                        size=10)

        return queryset
```

The view will look as follows:

search_indexes/viewsets/address.py

```
from django_elasticsearch_dsl_drf.constants import (
    LOOKUP_FILTER_GEO_DISTANCE,
    LOOKUP_FILTER_GEO_POLYGON,
    LOOKUP_FILTER_GEO_BOUNDING_BOX,
    SUGGESTER_COMPLETION,
)
from django_elasticsearch_dsl_drf.filter_backends import (
    DefaultOrderingFilterBackend,
    FacetedSearchFilterBackend,
    FilteringFilterBackend,
    GeoSpatialFilteringFilterBackend,
    GeoSpatialOrderingFilterBackend,
    NestedFilteringFilterBackend,
    OrderingFilterBackend,
    SearchFilterBackend,
    SuggesterFilterBackend,
)
from django_elasticsearch_dsl_drf.pagination import LimitOffsetPagination
from django_elasticsearch_dsl_drf.viewsets import DocumentViewSet

from ..backends import NestedContinentsBackend
from ..documents import AddressDocument
from ..serializers import AddressDocumentSerializer

class AddressDocumentViewSet(DocumentViewSet):
    """The AddressDocument view."""

    document = AddressDocument
    serializer_class = AddressDocumentSerializer
    lookup_field = 'id'
    filter_backends = [
        FacetedSearchFilterBackend,
        FilteringFilterBackend,
        OrderingFilterBackend,
        SearchFilterBackend,
        GeoSpatialFilteringFilterBackend,
        GeoSpatialOrderingFilterBackend,
        NestedContinentsBackend,
        NestedFilteringFilterBackend,
        DefaultOrderingFilterBackend,
        SuggesterFilterBackend,
    ]
    pagination_class = LimitOffsetPagination
    # Define search fields
    search_fields = (
        'street',
        'zip_code',
        'city.name',
        'city.country.name',
    )
    # Define filtering fields
    filter_fields = {
        'id': None,
        'city': 'city.name.raw',
```

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```
    }
    # Nested filtering fields
    nested_filter_fields = {
        'continent_country': {
            'field': 'continent.country.name.raw',
            'path': 'continent.country',
        },
        'continent_country_city': {
            'field': 'continent.country.city.name.raw',
            'path': 'continent.country.city',
        },
    }
    # Define geo-spatial filtering fields
    geo_spatial_filter_fields = {
        'location': {
            'lookups': [
                LOOKUP_FILTER_GEO_BOUNDING_BOX,
                LOOKUP_FILTER_GEO_DISTANCE,
                LOOKUP_FILTER_GEO_POLYGON,

            ],
        },
    }
    # Define ordering fields
    ordering_fields = {
        'id': None,
        'street': None,
        'city': 'city.name.raw',
        'country': 'city.country.name.raw',
        'zip_code': None,
    }
    # Define ordering fields
    geo_spatial_ordering_fields = {
        'location': None,
    }
    # Specify default ordering
    ordering = (
        'id',
        'street.raw',
        'city.name.raw',
    )
    # Suggester fields
    suggester_fields = {
        'street_suggest': {
            'field': 'street.suggest',
            'suggesters': [
                SUGGESTER_COMPLETION,
            ],
        },
        'city_suggest': {
            'field': 'city.name.suggest',
            'suggesters': [
                SUGGESTER_COMPLETION,
            ],
        },
        'country_suggest': {
            'field': 'city.country.name.suggest',
```

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```
            'suggesters': [
                SUGGESTER_COMPLETION,
            ],
        }
    }

    # Facets
    faceted_search_fields = {
        'city': {
            'field': 'city.name.raw',
            'enabled': True,
        },
        'country': {
            'field': 'city.country.name.raw',
            'enabled': True,
        },
    }
```

12.9 More like this

More like this functionality.

12.9.1 Usage example

12.9.1.1 Sample document

```
from django.conf import settings

from django_elasticsearch_dsl import Document, Index, fields
from django_elasticsearch_dsl_drf.compat import KeywordField, StringField
from django_elasticsearch_dsl_drf.analyzers import edge_ngram_completion

from books.models import Book

from .analyzers import html_strip

INDEX = Index(settings.ELASTICSEARCH_INDEX_NAMES[__name__])

# See Elasticsearch Indices API reference for available settings
INDEX.settings(
    number_of_shards=1,
    number_of_replicas=1,
    blocks={'read_only_allow_delete': False}
)


@INDEX.doc_type
class BookDocument(Document):

    # ID
    id = fields.IntegerField(attr='id')
```

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```
    title = StringField(
        analyzer=html_strip,
        fields={
            'raw': KeywordField(),
            'suggest': fields.CompletionField(),
            'edge_ngram_completion': StringField(
                analyzer=edge_ngram_completion
            ),
            'mlt': StringField(analyzer='english'),
        }
    )

    description = StringField(
        analyzer=html_strip,
        fields={
            'raw': KeywordField(),
            'mlt': StringField(analyzer='english'),
        }
    )

    summary = StringField(
        analyzer=html_strip,
        fields={
            'raw': KeywordField(),
            'mlt': StringField(analyzer='english'),
        }
    )

    # ...

    class Meta:
        """Meta options."""

        model = Book  # The model associate with this Document

    def prepare_summary(self, instance):
        """Prepare summary."""
        return instance.summary[:32766]
```

12.9.1.2 Sample view

```
from django_elasticsearch_dsl_drf.filter_backends import (
    FilteringFilterBackend,
    IdsFilterBackend,
    OrderingFilterBackend,
    PostFilterFilteringFilterBackend,
    SearchFilterBackend,
)
from django_elasticsearch_dsl_drf.viewsets import (
    DocumentViewSet,
    MoreLikeThisMixin,
)

from .serializers import BookDocumentSerializer
```

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```
class BookMoreLikeThisDocumentViewSet(DocumentViewSet,
                                      MoreLikeThisMixin):
    """Same as BookDocumentViewSet, with more-like-this and no facets."""

    # ...

    document = BookDocument
    lookup_field = 'id'
    serializer_class = BookDocumentSerializer

    # ...

    filter_backends = [
        # ...
        FilteringFilterBackend,
        PostFilterFilteringFilterBackend,
        IdsFilterBackend,
        OrderingFilterBackend,
        SearchFilterBackend,
        # ...
    ]

    # More-like-this options
    more_like_this_options = {
        'fields': (
            'title.mlt',
            'summary.mlt',
            'description.mlt',
        )
    }
```

12.9.1.3 Sample request

```
http://localhost:8000/search/books-more-like-this-no-options/1007587/more_like_this/
```

12.9.1.4 Generated query

```
{
  "query": {
    "more_like_this": {
      "fields": [
        "title.mlt",
        "summary.mlt",
        "description.mlt"
      ],
      "like": {
        "_index": "book",
        "_id": "1007587",
        "_type": "book_document"
      }
    }
  },
  "from": 0,
```

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```
  "size": 14,
  "sort": [
    "_score"
  ]
}
```

12.9.1.5 Options

Pretty much all Elasticsearch more-like-this options available. You might be particularly interested in the following:

- min_term_freq
- max_query_terms
- unlike
- stop_words

12.10 Global aggregations

Global aggregations (facets) are regular aggregations, which are not influenced by the search query/filter. They deliver results similar to *post_filter*.

12.10.1 Sample view

```
from django_elasticsearch_dsl_drf.filter_backends import (
    CompoundSearchFilterBackend,
    DefaultOrderingFilterBackend,
    FacetedSearchFilterBackend,
    OrderingFilterBackend,
)
from django_elasticsearch_dsl_drf.viewsets import DocumentViewSet

from .documents import BookDocument
from .serializers import BookDocumentSerializer

class BookCompoundSearchBackendDocumentViewSet(DocumentViewSet):

    document = BookDocument
    serializer_class = BookDocumentSerializer
    lookup_field = 'id'

    filter_backends = [
        # ...
        OrderingFilterBackend,
        DefaultOrderingFilterBackend,
        CompoundSearchFilterBackend,
        FacetedSearchFilterBackend,
        # ...
    ]

    faceted_search_fields = {
        'state_global': {
```

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```
            'field': 'state.raw',
            'enabled': True,
            'global': True,  # This makes the aggregation global
        },
    }
```

12.10.2 Sample request

```
http://localhost:8000/search/books/?facet=state_global&state=rejected
```

12.10.3 Generated query

```
{
   "from":0,
   "query":{
      "bool":{
         "filter":[
            {
               "terms":{
                  "state.raw":[
                     "rejected"
                  ]
               }
            }
         ]
      }
   },
   "size":25,
   "aggs":{
      "_filter_state_global":{
         "aggs":{
            "state_global":{
               "terms":{
                  "field":"state.raw"
               }
            }
         },
         "global":{

         }
      }
   },
   "sort":[
      "id",
      "title",
      "price"
   ]
}
```

12.10.4 Sample response


```
{
    "count": 25,
    "next": null,
    "previous": null,
    "facets": {
        "_filter_state_global": {
            "state_global": {
                "buckets": [
                    {
                        "doc_count": 29,
                        "key": "not_published"
                    },
                    {
                        "doc_count": 25,
                        "key": "in_progress"
                    },
                    {
                        "doc_count": 25,
                        "key": "rejected"
                    },
                    {
                        "doc_count": 21,
                        "key": "cancelled"
                    },
                    {
                        "doc_count": 17,
                        "key": "published"
                    }
                ],
                "sum_other_doc_count": 0,
                "doc_count_error_upper_bound": 0
            },
            "doc_count": 117
        }
    },
    "results": [
        {
            "id": 1007489,
            "title": "Cupiditate qui nulla itaque maxime impedit.",
            "description": null,
            "summary": "Aut recusandae architecto incidunt quaerat odio .",
            "authors": [
                "Evy Vermeulen",
                "Tycho Weijland",
                "Rik Zeldenrust"
            ],
            "publisher": "Overdijk Inc",
            "publication_date": "2014-02-28",
            "state": "rejected",
            "isbn": "978-0-15-184366-4",
            "price": 6.53,
            "pages": 82,
            "stock_count": 30,
            "tags": [
                "Trilogy"
```


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```
            ],
            "highlight": {},
            "null_field": null,
            "score": null
        },
        # ...
    ]
}
```

12.11 Configuration tweaks

12.11.1 Ignore certain Elasticsearch exceptions

```
class BookIgnoreIndexErrorsDocumentViewSet(DocumentViewSet):

    # ...
    ignore = [404]
    # ...
```

12.12 Source filtering backend

Allows to control how the *_source* field is returned with every hit.

By default operations return the contents of the _source field unless you have used the *stored_fields* parameter or if the *_source* field is disabled.

You can turn off *_source* retrieval by using the *source* parameter:

```
from django_elasticsearch_dsl_drf.filter_backends import (
    SourceBackend
)
from django_elasticsearch_dsl_drf.viewsets import (
    BaseDocumentViewSet,
)

# Local article document definition
from .documents import ArticleDocument

# Local article document serializer
from .serializers import ArticleDocumentSerializer

class ArticleDocumentView(BaseDocumentViewSet):

    document = ArticleDocument
    serializer_class = ArticleDocumentSerializer
    filter_backends = [SourceBackend,]
    source = ["title"]
```

To disable *_source* retrieval set to False:

```
# ...
source = False
# ...
```

The *source* also accepts one or more wildcard patterns to control what parts of the *_source* should be returned:

```
# ...
source = ["title", "author.*"]
# ...
```

Finally, for complete control, you can specify both *includes* and *excludes* patterns:

```
# ...
source = {
    "includes": ["title", "author.*"],
    "excludes": [ "*.description" ]
}
# ...
```

Note: Source can make queries lighter. However, it can break current functionality. Use it with caution.

12.13 Pagination

Check the view definitions from the advanced usage examples.

12.13.1 Page number pagination

By default, the `PageNumberPagination` class is used on all view sets which inherit from `DocumentViewSet`.

Example:

```
http://127.0.0.1:8000/search/books/?page=4
http://127.0.0.1:8000/search/books/?page=4&page_size=100
```

12.13.2 Query friendly page number pagination

Works exactly as `PageNumberPagination` but fires (mostly) a single query to Elasticsearch, instead of 2.

search_indexes/viewsets/book.py

```
# ...

from django_elasticsearch_dsl_drf.pagination import QueryFriendlyPageNumberPagination

# ...

class BookDocumentView(DocumentViewSet):
    """The BookDocument view."""

    # ...
```

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```
    pagination_class = QueryFriendlyPageNumberPagination

    # ...
```

12.13.3 Limit/offset pagination

In order to use a different `pagination_class`, for instance the `LimitOffsetPagination`, specify it explicitly in the view.

search_indexes/viewsets/book.py

```
# ...

from django_elasticsearch_dsl_drf.pagination import LimitOffsetPagination

# ...

class BookDocumentView(DocumentViewSet):
    """The BookDocument view."""

    # ...

    pagination_class = LimitOffsetPagination

    # ...
```

Example:

```
http://127.0.0.1:8000/search/books/?limit=100
http://127.0.0.1:8000/search/books/?offset=400&limit=100
```

12.13.3.1 Customisations

If you want to add additional data to the paginated response, for instance, the page size, subclass the correspondent pagination class and add your modifications in the `get_paginated_response_context` method as follows:

```
from django_elasticsearch_dsl_drf.pagination import PageNumberPagination


class CustomPageNumberPagination(PageNumberPagination):
    """Custom page number pagination."""

    def get_paginated_response_context(self, data):
        __data = super(
            CustomPageNumberPagination,
            self
        ).get_paginated_response_context(data)
        __data.append(
            ('current_page', int(self.request.query_params.get('page', 1)))
        )
        __data.append(
            ('page_size', self.get_page_size(self.request))
```

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```
        )

        return sorted(__data)
```

Same applies to the customisations of the `LimitOffsetPagination`.

12.14 Indexing troubleshooting

When indexing lots of data (millions of records), you might get timeout exceptions.

A couple of possible solutions (complementary) are listed below. All of them are independent and not strictly related to each other. Thus, you may just use one or a couple or all of them. It's totally up to you.

If you want to test what works best for you, use this test dataset (Postgres) containing 1.8 million location records for *search_indexes.documents.location.LocationDocument* document.

12.14.1 Timeout

For re-indexing, you might want to increase the timeout to avoid time-out exceptions.

To do that, make a new settings file (*indexing*) and add the following:

settings/indexing.py

```
from .base import *  # Import from your main/production settings.

# Override the elasticsearch configuration and provide a custom timeout
ELASTICSEARCH_DSL = {
    'default': {
        'hosts': 'localhost:9200',
        'timeout': 60,  # Custom timeout
    },
}
```

Then rebuild your search index specifying the indexing settings:

```
./manage.py search_index --rebuild -f --settings=settings.indexing
```

Note, that you may as well specify the timeout in your global settings. However, if you're happy with how things work in production (except for the indexing part), you may do as suggested (separate indexing settings).

12.14.2 Chunk size

Note, that this feature is (yet) *only available in the forked version* barseghyanartur/django-elasticsearch-dsl.

Install it as follows:

```
pip install https://github.com/barseghyanartur/django-elasticsearch-dsl/archive/mjl-
↪index-speedup-2-additions.zip
```

Specify the *chunk_size* param as follows (we set chunk_size to 50 in this case):

```
./manage.py search_index --rebuild -f --chunk-size=50
```

12.14.3 Use parallel indexing

Parallel indexing speeds things up (drastically). In my tests I got a speedup boost of 66 percent on 1.8 million records.

Note, that this feature is (yet) *only available in the forked versions* barseghyanartur/django-elasticsearch-dsl. or mjl/django-elasticsearch-dsl.

Install it as follows:

barseghyanartur/django-elasticsearch-dsl fork

```
pip install https://github.com/barseghyanartur/django-elasticsearch-dsl/archive/mjl-
↪index-speedup-2-additions.zip
```

mjl/django-elasticsearch-dsl fork

```
pip install https://github.com/mjl/django-elasticsearch-dsl/archive/mjl-index-speedup.
↪zip
```

In order to make use of it, define set *parallel_indexing* to True on the document meta.

yourapp/documents.py

```
class LocationDocument(Document):

    # ...

    class Meta:
        """Meta options."""

        model = Location
        parallel_indexing = True
```

12.14.4 Limit the number of items indexed at once

This is very close to the *chunk_size* shown above, but might work better on heavy querysets. Instead of processing entire queryset at once, it's sliced instead. So, if you have 2 million records in your queryset and you wish to index them by chunks of 20 thousands at once, specify the *queryset_pagination* on the document meta:

yourapp/documents.py

```
class LocationDocument(Document):

    # ...

    class Meta:
        """Meta options."""

        model = Location
        queryset_pagination = 50
```

You may even make it dynamic based on the settings loaded. So, for instance, you may have it set to None in production (if you were happy with how things were) and provide a certain value for it in the dedicated indexing settings (as already has been mentioned above).

settings/base.py

```
# Main/production settings
ELASTICSEARCH_DSL_QUERYSET_PAGINATION = None
```

settings/indexing.py

```
# Indexing only settings
ELASTICSEARCH_DSL_QUERYSET_PAGINATION = 1000
```

yourapp/documents.py

```
from django.conf import settings

# ...

class LocationDocument(Document):

    # ...

    class Meta:
        """Meta options."""

        model = Location
        queryset_pagination = settings.ELASTICSEARCH_DSL_QUERYSET_PAGINATION
```

12.15 FAQ

You will find a lot of useful information in the documentation.

Additionally, all raised issues that were questions have been marked as *question*, so you could take a look at the closed (question) issues.

12.15.1 Questions and answers

Question

- Is it possible to search sub string in word?
- How to implement partial/fuzzy search?

Answer

Yes. There are many ways doing this in Elasticsearch.

To mention a couple:

- You could use partial matching using NGrams. Partially shown here. The basic idea.
- Use contains functional filter.

Question

Can we use Django REST Framework `serializers.ModelSerializer` directly?

Answer

No, but you could use `serializers.Serializer`. Read the docs.

Question

How can I order search results overall relevance

Answer

That's `_score`. See the following example.

```
ordering = ('_score', 'id', 'title', 'price',)
```

In the given example, results are sorted by the `score` (which is relevance), then by `id`, `title` and `price`.

Question

How can I separate my development/production/acceptance/test indexes?

Answer

It's documented here.

Question

How can I sync my database with Elasticsearch indexes.

Answer

It's documented here.

Question

I keep getting `[FORBIDDEN/12/index read-only / allow delete (api)]` error when saving models despite having `blocks={'read_only_allow_delete': None}`, in settings.

Answer

Once of the possible reasons for the mentioned symptom might be low disk space.

12.16 Demo

12.16.1 Run demo locally

In order to be able to quickly evaluate the `django-elasticsearch-dsl-drf`, a demo app (with a quick installer) has been created (works on Ubuntu/Debian, may work on other Linux systems as well, although not guaranteed). Follow the instructions below for having the demo running within a minute.

12.16.2 Prerequisites

- Python 3
- Docker

Grab and run Elasticsearch:

```
docker pull docker.elastic.co/elasticsearch/elasticsearch:5.5.3
docker run -p 9200:9200 -e "discovery.type=single-node" -e "xpack.security.
↪enabled=false" docker.elastic.co/elasticsearch/elasticsearch:5.5.3
```

Grab and run the latest `django_elasticsearch_dsl_drf_demo_installer.sh`:

```
wget -O - https://raw.github.com/barseghyanartur/django-elasticsearch-dsl-drf/stable/
↪examples/django_elasticsearch_dsl_drf_demo_installer.sh | bash
```

Open your browser and test the app.

- URL: http://127.0.0.1:8001/search/

12.17 frontend demo for django-elasticsearch-dsl-drf

Frontend demo for django-elasticsearch-dsl-drf

Based on Book model, BookDocument and BookFrontendDocumentViewSet viewset.

12.17.1 Quick start

From the project root directory.

12.17.1.1 Install the django requirements

Since project supports Django versions from 1.8 to 2.1, you may install any version you want.

To install latest LTS version, do:

```
pip install -r examples/requirements/django_1_11.txt
```

12.17.1.2 Install Elasticsearch requirements

Since project supports Elasticsearch versions from 2.x to 6.x, you may install any version you want.

To install requirements for 6.x, do:

```
pip install -r examples/requirements/elastic_6x.txt
```

12.17.1.3 Run Elasticsearch

It's really easy using Docker.

To run 6.3.2 using Docker, do:

```
docker pull docker.elastic.co/elasticsearch/elasticsearch:6.3.2
docker run -p 9200:9200 -e "discovery.type=single-node" -e "xpack.security.
↪enabled=false" docker.elastic.co/elasticsearch/elasticsearch:6.3.2
```

12.17.1.4 Build Elasticsearch index

First, create some test data:

```
./scripts/create_test_data.sh
```

Then build Elasticsearch index:

```
./scripts/rebuild_index.sh
```

12.17.1.5 Install React requirements

Note, that you should be using NodeJS > 7.5.

Typically, you would first do:

```
nvm use 9
```

Then run the installer:

```
./scripts/yarn_install.sh
```

12.17.1.6 Run Django

The following script would run the Django server which is used by the demo app.

```
./scripts/runserver.sh
```

12.17.1.7 Run React demo app

Finally, run the React demo app:

```
./scripts/frontend.sh
```

Open http://localhost:3000 to view the frontend in the browser.

12.18 Release history and notes

Sequence based identifiers are used for versioning (schema follows below):

```
major.minor[.revision]
```

- It's always safe to upgrade within the same minor version (for example, from 0.3 to 0.3.4).
- Minor version changes might be backwards incompatible. Read the release notes carefully before upgrading (for example, when upgrading from 0.3.4 to 0.4).
- All backwards incompatible changes are mentioned in this document.

12.18.1 0.22.1

2021-05-01

- *DictionaryProxy* gets an optional *meta* argument, which will hold meta information of the hit.

12.18.2 0.22

2021-03-26

Note: Release dedicated to my dear son, Raffi, who turns 16 at the end of the month. Happy birthday, dear Raffi.

- Make it easier to override the *DictionaryProxy* by moving it to the scope of the *BaseDocumentViewSet*.
- Add *tzinfo* check for better date vs datetime determination.
- Broader *EmptySearch* compatibility with *elasticsearch_dsl.Search*.
- Remove old Django code from docs.
- Allow more specific targeting for nested sort fields.
- Add more tests.

12.18.3 0.21

2021-02-04

Note: Release dedicated to defenders of Armenia and Artsakh (Nagorno Karabakh) and all the victims of Turkish and Azerbaijani aggression.

- Drop support for Python 2.7 and 3.5.
- Drop support for Django 1.11, 2.0 and 2.1.
- Tested against Django 3.1 and Python 3.9.
- Take options (ex: boost, fuzziness) into consideration in *NestedQueryBackend*.
- Added an example of a proper date formatting.
- Added an example of alternative document ID.
- Added experimental *QueryFriendlyPageNumberPagination* which fires just a single query instead of used two used by *PageNumberPagination*.

12.18.4 0.20.9

2020-10-16

Note: Help to rebuild the Armenian homeland. Please, make a donation. All donations received are solely for humanitarian purposes.

- Implemented `geo_shape` filter.

12.18.5 0.20.8

2020-04-10

- Fixes in `skip_duplicates` option support for native suggester.

12.18.6 0.20.7

2020-04-10

- Make `skip_duplicates` available for native suggester.

12.18.7 0.20.6

2020-04-04

- Basic implementation of RegExp field lookup.

12.18.8 0.20.5

2019-12-30

- Minor fixes.

12.18.9 0.20.4

2019-12-25

- Tested against Django 3.0.
- Tested against Python 3.8.
- Tested against Django REST Framework 3.11.
- Minor fixes.
- Test optimisations.

12.18.10 0.20.3

2019-09-20

- Testing the auxiliary versions module.

12.18.11 0.20.2

2019-08-30

- Minor improvements in test coverage.

12.18.12 0.20.1

2019-08-18

- Minor Elasticsearch 7.x compatibility fixes.

12.18.13 0.20

2019-08-17

- Adding Elasticsearch 7.x support.

12.18.14 0.19

2019-08-06

Note: Dropping support for Elasticsearch versions prior 6.x. This is unfortunate, but this project depends on the upstream `django-elasticsearch-dsl` where as of version 6.4.x the support for older Elasticsearch versions was dropped. Use `django-elasticsearch-dsl-drf` version 0.18 if you need to work with 5.x or 2.x.

- Dropping support for Elasticsearch versions prior to 6.x.

12.18.15 0.18

2019-06-26

Note: Support for Django versions prior 1.11 has been dropped. Support for Django REST Framework prior 3.9 has been dropped.

- Dropping support for Django versions prior 1.11.
- Dropping support for Django REST Framework versions prior 3.9.
- Fix Django REST Framework deprecations.

12.18.16 0.17.7

2019-05-30

Note: Support for Django 1.8, 1.9 and 1.10 will be dropped in the next release. As usual, compatibility shims won't be removed directly. The change will affect the test matrix only first.

- Prevent unicode errors in tests on Python 2.7.
- Fixes in occasionally failing search test (`test_search` and `test_filtering_geo_spatial`).
- Working travis.
- Fixed issue with errors on empty `ids` filter.

12.18.17 0.17.6

2019-04-08

- Minor fixes.
- Additions to the docs.

12.18.18 0.17.5

2019-04-03

Note: Dropping support for Python 3.4. As of this version everything works, but no longer tested.

- Minor fixes.
- Dropping Python 3.4 support.
- Django 2.2 support.

12.18.19 0.17.4

2019-03-13

- Source backend.

12.18.20 0.17.3

2019-02-08

- Obey object permissions.

12.18.21 0.17.2

2019-01-07

- Add nested ordering.

12.18.22 0.17.1

2018-12-12

- Skipping the new context suggester tests for Elasticsearch 2.x and a number of other 2.x related fixes in tests.
- A number of 5.x fixes in tests.

12.18.23 0.17

2018-12-12

Note: Release supported by whythawk.

- Added support for context suggesters (*category* and *geo*). Note, that this functionality is available for Elasticsearch 5.x and 6.x (thus, not for Elasticsearch 2.x).
- Added support for *size* attribute on suggesters.

12.18.24 0.16.3

2018-10-31

Note: Release dedicated to Charles Aznavour.

- Make it possible to ignore certain Elastic exceptions by providing the appropriate `ignore` argument (on the view level). Default behaviour is intact. Set it to a list of integers (error codes) if you need it so.

12.18.25 0.16.2

2018-09-21

- Tested yet untested `pip_helpers` module.
- More tests.

12.18.26 0.16.1

2018-09-18

- Make it possible to control the size of the functional suggester queries.

12.18.27 0.16

2018-09-10

Note: This release contains minor backwards incompatible changes. You might need to update your code if you have been making use of nested search.

Old way of declaring nested search fields

```
search_nested_fields = {
    'country': ['name'],
    'country.city': ['name'],
}
```

New way of declaring nested search fields

```
search_nested_fields = {
    'country': {
        'path': 'country',
        'fields': ['name'],
    },
    'city': {
        'path': 'country.city',
        'fields': ['name'],
    },
}
```

- Changes in nested search. This affects usage of both historical `SearchFilterBackend` and `CompoundSearchFilterBackend`. Update your code accordingly.

- Take meta property `using` of the document `Meta` into consideration.

12.18.28 0.15.1

2018-08-22

- More tests.
- Fixes in docs.

12.18.29 0.15

2018-08-10

- Global aggregations.

12.18.30 0.14

2018-08-06

- More like this support through detail action.

12.18.31 0.13.2

2018-08-03

- Successfully tested against Python 3.7 and Django 2.1.
- Unified the base `BaseSearchFilterBackend` class.
- Minor clean up and fixes in docs.
- Upgrading test suite to modern versions (`pytest`, `tox`, `factory_boy`, `Faker`). Removing unused dependencies from requirements (`drf-extensions`).
- Fixed missing PDF generation in offline documentation (non ReadTheDocs). The `rst2pdf` package (which does not support Python 3) has been replaced with `rinohtype` package (which does support Python 3).

12.18.32 0.13.1

2018-07-26

- Minor fix in suggesters on Elasticsearch 6.x.

12.18.33 0.13

2018-07-23

Note: Release dedicated to Guido van Rossum, the former Python BDFL, who resigned from his BDFL position recently. Guido knew it better than we all do. His charisma, talent and leadership will be certainly missed a lot by the community. Thumbs up again for the best BDFL ever.

- The `SimpleQueryStringSearchFilterBackend` backend has been implemented.

- Minor fixes in the `MultiMatchSearchFilterBackend` backend.

12.18.34 0.12

2018-07-21

- New-style Search Filter Backends. Old style `SearchFilterBackend` is still supported (until at least version 0.16), but is deprecated. Migrate to `CompoundSearchFilterBackend`. `MultiMatchSearchFilterBackend` introduced (the name speaks for itself).
- From now on, your views would also work with model- and object-level permissions of the Django REST Framework (such as `DjangoModelPermissions`, `DjangoModelPermissionsOrAnonReadOnly` and `DjangoObjectPermissions`). Correspondent model or object would be used for that. If you find it incorrect in your case, write custom permissions and declare the explicitly in your view-sets.
- Fixed geo-spatial `geo_distance` ordering for Elastic 5.x. and 6.x.
- Fixes occasionally failing tests.

12.18.35 0.11

2018-07-15

Note: This release contains backwards incompatible changes. You should update your Django code and front-end parts of your applications that were relying on the complex queries using `|` and `:` chars in the GET params.

Note: If you have used custom filter backends using `SEPARATOR_LOOKUP_VALUE`, `SEPARATOR_LOOKUP_COMPLEX_VALUE` or `SEPARATOR_LOOKUP_COMPLEX_MULTIPLE_VALUE` constants or `split_lookup_complex_value` helper method of the `FilterBackendMixin`, you most likely want to run your functional tests to see if everything still works.

Note: Do not keep things as they were in your own fork, since new search backends will use the `|` and `:` symbols differently.

Examples of old API requests vs new API requests

Note: Note, that `|` and `:` chars were mostly replaced with `__` and `,`.

Old API requests

```
http://127.0.0.1:8080/search/publisher/?search=name|reilly&search=city|london
http://127.0.0.1:8000/search/publishers/?location__geo_distance=100000km|12.04|-63.93
http://localhost:8000/api/articles/?id__terms=1|2|3
http://localhost:8000/api/users/?age__range=16|67|2.0
http://localhost:8000/api/articles/?id__in=1|2|3
http://localhost:8000/api/articles/?location__geo_polygon=40,-70|30,-80|20,-90|_
↪name:myname|validation_method:IGNORE_MALFORMED
```

New API requests

```
http://127.0.0.1:8080/search/publisher/?search=name:reilly&search=city:london
http://127.0.0.1:8000/search/publishers/?location__geo_distance=100000km__12.04__-63.
↪93
http://localhost:8000/api/articles/?id__terms=1__2__3
http://localhost:8000/api/users/?age__range=16__67__2.0
http://localhost:8000/api/articles/?id__in=1__2__3
http://localhost:8000/api/articles/?location__geo_polygon=40,-70__30,-80__20,-90___
↪name,myname__validation_method,IGNORE_MALFORMED
```

- `SEPARATOR_LOOKUP_VALUE` has been removed. Use `SEPARATOR_LOOKUP_COMPLEX_VALUE` and `SEPARATOR_LOOKUP_COMPLEX_MULTIPLE_VALUE` instead.
- `SEPARATOR_LOOKUP_NAME` has been added.
- The method `split_lookup_complex_value` has been removed. Use `split_lookup_complex_value` instead.
- Default filter lookup option is added. In past, if no specific lookup was provided and there were multiple values for a single field to filter on, by default `terms` filter was used. The `term` lookup was used by default in similar situation for a single value to filter on. It's now possible to declare default lookup which will be used when no lookup is given.
- Removed deprecated `views` module. Import from `viewsets` instead.
- Removed undocumented `get_count` helper from `helpers` module.

12.18.36 0.10

2018-07-06

- Elasticsearch 6.x support.
- Minor fixes.

12.18.37 0.9

2018-07-04

- Introduced `post_filter` support.
- Generalised the `FilteringFilterBackend` backend. Both `PostFilterFilteringFilterBackend` and `NestedFilteringFilterBackend` backends are now primarily based on it.
- Reduced Elastic queries from 3 to 2 when using `LimitOffsetPagination`.

12.18.38 0.8.4

2018-06-27

Note: Release supported by Goldmund, Wyldebeast & Wunderliebe.

- Added `NestedFilteringFilterBackend` backend.
- Documentation updated with examples of implementing a nested aggregations/facets.

12.18.39 0.8.3

2018-06-25

- It's possible to retrieve original dictionary from `DictionaryProxy` object.
- Added helper wrappers and helper functions as a temporary fix for issues in the `django-elasticsearch-dsl`.

12.18.40 0.8.2

2018-06-05

- Minor fixes.

12.18.41 0.8.1

2018-06-05

- Fixed wrong filter name in functional suggesters results into an error on Django 1.10 (and prior).
- Documentation improvements.

12.18.42 0.8

2018-06-01

Note: Release supported by Goldmund, Wyldebeast & Wunderliebe.

Note: This release contain minor backwards incompatible changes. You should update your code.

- (1) `BaseDocumentViewSet` (which from now on does not contain `suggest` functionality) has been renamed to `DocumentViewSet` (which does contain `suggest` functionality).
- (2) You should no longer import from `django_elasticsearch_dsl_drf.views`. Instead, import from `django_elasticsearch_dsl_drf.viewsets`.

- Deprecated `django_elasticsearch_dsl_drf.views` in favour of `django_elasticsearch_dsl_drf.viewsets`.
- Suggest action/method has been moved to `SuggestMixin` class.
- `FunctionalSuggestMixin` class introduced which resembled functionality of the `SuggestMixin` with several improvements/additions, such as advanced filtering and context-aware suggestions.
- You can now define a default suggester in `suggester_fields` which will be used if you do not provide suffix for the filter name.

12.18.43 0.7.2

2018-05-09

Note: Release dedicated to the Victory Day, the victims of the Second World War and Liberation of Shushi.

- Django REST framework 3.8.x support.

12.18.44 0.7.1

2018-04-04

Note: Release supported by Goldmund, Wyldebeast & Wunderliebe.

- Add query *boost* support for search fields.

12.18.45 0.7

2018-03-08

Note: Dear ladies, congratulations on International Women's Day

- CoreAPI/CoreSchema support.

12.18.46 0.6.4

2018-03-05

- Minor fix: explicitly use DocType in the ViewSets.

12.18.47 0.6.3

2018-01-03

- Minor fix in the search backend.
- Update the year in the license and code.

12.18.48 0.6.2

2017-12-29

- Update example project (and the tests that are dependant on the example project) to work with Django 2.0.
- Set minimal requirement for `django-elasticsearch-dsl` to 3.0.

12.18.49 0.6.1

2017-11-28

- Documentation fixes.

12.18.50 0.6

2017-11-28

- Added highlight backend.
- Added nested search functionality.

12.18.51 0.5.1

2017-10-18

- Fixed serialization of complex nested structures (lists of nested objects).
- Documentation fixes.

12.18.52 0.5

2017-10-05

Note: This release contains changes that might be backwards incompatible for your project. If you have used dynamic document serializer `django_elasticsearch_dsl_drf.serializers.DocumentSerializer` with customisations (with use of `serializers.SerializerMethodField`, having the value parsed to JSON), just remove the custom parts.

- Support for `ObjectField`, `NestedField`, `GeoPointField`, `ListField`, `GeoShapeField` (and in general, nesting fields either as a dictionary or list should not be a problem at all).
- Dynamic serializer has been made less strict.
- Added `get_paginated_response_context` methods to both `PageNumberPagination` and `LimitOffsetPagination` pagination classes to simplify customisations.

12.18.53 0.4.4

2017-10-02

- Documentation improvements (Elasticsearch suggestions).
- More tests (term and phrase suggestions).
- Code style fixes.

12.18.54 0.4.3

2017-09-28

- Documentation fixes.
- Fixes in tests.
- Improved factories.

12.18.55 0.4.2

2017-09-28

- Added `geo_bounding_box` query support to the geo-spatial features.

12.18.56 0.4.1

2017-09-26

- Fixes in docs.

12.18.57 0.4

2017-09-26

Note: This release contains changes that might be backwards incompatible for your project. Make sure to add the `DefaultOrderingFilterBackend` everywhere you have used the `OrderingFilterBackend`, right after the latter.

- `GeoSpatialFilteringFilterBackend` filtering backend, supporting `geo_distance` and `geo_polygon` geo-spatial queries.
- `GeoSpatialOrderingFilterBackend` ordering backend, supporting ordering of results for `geo_distance` filter.
- `OrderingFilterBackend` no longer provides defaults when no ordering is given. In order to take care of the defaults include the `DefaultOrderingFilterBackend` in the list of `filter_backends` (after all other ordering backends).

12.18.58 0.3.12

2017-09-21

- Added `geo_distance` filter. Note, that although functionally the filter would not change its' behaviour, it is likely to be moved to a separate backend (`geo_spatial`). For now use as is.
- Minor fixes.

12.18.59 0.3.11

2017-09-21

- Added `query` argument to `more_like_this` helper.

12.18.60 0.3.10

2017-09-20

- Minor fixes.
- Simplified Elasticsearch version check.

12.18.61 0.3.9

2017-09-12

- Python 2.x compatibility fix.

12.18.62 0.3.8

2017-09-12

- Fixes tests on some environments.

12.18.63 0.3.7

2017-09-07

- Docs fixes.

12.18.64 0.3.6

2017-09-07

- Fixed suggestions test for Elasticsearch 5.x.
- Added *compat* module for painless testing of Elastic 2.x to Elastic 5.x transition.

12.18.65 0.3.5

2017-08-24

- Minor fixes in the ordering backend.
- Improved tests and coverage.

12.18.66 0.3.4

2017-08-23

- Minor fixes in the ordering backend.

12.18.67 0.3.3

2017-07-13

- Minor fixes and improvements.

12.18.68 0.3.2

2017-07-12

- Minor fixes and improvements.

12.18.69 0.3.1

2017-07-12

- Minor Python2 fixes.
- Minor documentation fixes.

12.18.70 0.3

2017-07-11

- Add suggestions support (`term`, `phrase` and `completion`).

12.18.71 0.2.6

2017-07-11

- Minor fixes.
- Fixes in documentation.

12.18.72 0.2.5

2017-07-11

- Fixes in documentation.

12.18.73 0.2.4

2017-07-11

- Fixes in documentation.

12.18.74 0.2.3

2017-07-11

- Fixes in documentation.

12.18.75 0.2.2

2017-07-11

- Fixes in documentation.

12.18.76 0.2.1

2017-07-11

- Fixes in documentation.

12.18.77 0.2

2017-07-11

- Initial faceted search support.
- Pagination support.

12.18.78 0.1.8

2017-06-26

- Python2 fixes.
- Documentation and example project improvements.

12.18.79 0.1.7

2017-06-25

- Dynamic serializer for Documents.
- Major improvements in documentation.

12.18.80 0.1.6

2017-06-23

- Implemented `gt`, `gte`, `lt` and `lte` functional query lookups.
- Implemented `ids` native filter lookup.

12.18.81 0.1.5

2017-06-22

- Implemented `endswith` and `contains` functional filters.
- Added tests for `wildcard`, `exists`, `exclude` and `isnull` filters. Improved `range` filter tests.
- Improve `more_like_this` helper test.
- Improve ordering tests.
- Two additional arguments added to the `more_like_this` helper: `min_doc_freq` and `max_doc_freq`.
- Minor documentation improvements.

12.18.82 0.1.4

2017-06-22

- Added tests for `in`, `term` and `terms` filters.
- Minor documentation fixes.

12.18.83 0.1.3

2017-06-21

- Added tests for `more_like_this` helper, `range` and `prefix` filters.
- Minor documentation improvements.

12.18.84 0.1.2

2017-06-20

- Minor fixes in tests.

12.18.85 0.1.1

2017-06-20

- Fixes in `more_like_this` helper.
- Tiny documentation improvements.

12.18.86 0.1

2017-06-19

- Initial beta release.

12.19 django_elasticsearch_dsl_drf package

12.19.1 Subpackages

12.19.1.1 django_elasticsearch_dsl_drf.fields package

12.19.1.1.1 Submodules

12.19.1.1.2 django_elasticsearch_dsl_drf.fields.common module

Common fields.

class django_elasticsearch_dsl_drf.fields.common.**BooleanField**(*read_only=False*, *write_only=False*, *required=None*, *default=<class 'rest_framework.fields.empty'>*, *initial=<class 'rest_framework.fields.empty'>*, *source=None*, *label=None*, *help_text=None*, *style=None*, *error_messages=None*, *validators=None*, *allow_null=False*)

Bases: rest_framework.fields.BooleanField

Object field.

get_value(*dictionary*)
Get value.

to_representation(*value*)
To representation.

class django_elasticsearch_dsl_drf.fields.common.**CharField**(***kwargs*)

Bases: rest_framework.fields.CharField

Object field.

get_value(*dictionary*)
Get value.

to_representation(*value*)
To representation.

class django_elasticsearch_dsl_drf.fields.common.**DateField**(*format=<class 'rest_framework.fields.empty'>*, *input_formats=None*, **args*, ***kwargs*)

Bases: rest_framework.fields.DateField

Object field.

get_value(*dictionary*)
Get value.

to_representation(*value*)
To representation.

class django_elasticsearch_dsl_drf.fields.common.**FloatField**(***kwargs*)

Bases: rest_framework.fields.FloatField

Object field.

get_value(*dictionary*)
Get value.

to_representation(*value*)
To representation.

class django_elasticsearch_dsl_drf.fields.common.**IntegerField**(***kwargs*)
Bases: rest_framework.fields.IntegerField

Object field.

get_value(*dictionary*)
Get value.

to_representation(*value*)
To representation.

class django_elasticsearch_dsl_drf.fields.common.**IPAddressField**(*protocol='both'*, ***kwargs*)
Bases: rest_framework.fields.IPAddressField

Object field.

get_value(*dictionary*)
Get value.

to_representation(*value*)
To representation.

12.19.1.1.3 django_elasticsearch_dsl_drf.fields.helpers module

Helpers.

django_elasticsearch_dsl_drf.fields.helpers.**to_representation**(*value*)
To representation.

12.19.1.1.4 django_elasticsearch_dsl_drf.fields.nested_fields module

Nested fields.

class django_elasticsearch_dsl_drf.fields.nested_fields.**GeoPointField**(*read_only=False*, *write_only=False*, *required=None*, *default=<class 'rest_framework.fields.empty'>*, *initial=<class 'rest_framework.fields.empty'>*, *source=None*, *label=None*, *help_text=None*, *style=None*, *error_messages=None*, *validators=None*, *allow_null=False*)
Bases: *django_elasticsearch_dsl_drf.fields.nested_fields.ObjectField*

Geo point field.

class django_elasticsearch_dsl_drf.fields.nested_fields.**GeoShapeField**(*read_only=False*, *write_only=False*, *required=None*, *default=<class 'rest_framework.fields.empty'>*, *initial=<class 'rest_framework.fields.empty'>*, *source=None*, *label=None*, *help_text=None*, *style=None*, *error_messages=None*, *validators=None*, *allow_null=False*)

Bases: *django_elasticsearch_dsl_drf.fields.nested_fields.ObjectField*

Geo shape field.

class django_elasticsearch_dsl_drf.fields.nested_fields.**NestedField**(*read_only=False*, *write_only=False*, *required=None*, *default=<class 'rest_framework.fields.empty'>*, *initial=<class 'rest_framework.fields.empty'>*, *source=None*, *label=None*, *help_text=None*, *style=None*, *error_messages=None*, *validators=None*, *allow_null=False*)

Bases: *django_elasticsearch_dsl_drf.fields.nested_fields.ObjectField*

Nested field.

class django_elasticsearch_dsl_drf.fields.nested_fields.**ObjectField**(*read_only=False*, *write_only=False*, *required=None*, *default=<class 'rest_framework.fields.empty'>*, *initial=<class 'rest_framework.fields.empty'>*, *source=None*, *label=None*, *help_text=None*, *style=None*, *error_messages=None*, *validators=None*, *allow_null=False*)

Bases: rest_framework.fields.Field

Object field.

get_value(*dictionary*)
Get value.

to_internal_value(*data*)
To internal value.

to_representation(*value*)
To representation.

class django_elasticsearch_dsl_drf.fields.nested_fields.**ListField**(*read_only=False*, *write_only=False*, *required=None*, *default=<class 'rest_framework.fields.empty'>*, *initial=<class 'rest_framework.fields.empty'>*, *source=None*, *label=None*, *help_text=None*, *style=None*, *error_messages=None*, *validators=None*, *allow_null=False*)

Bases: rest_framework.fields.Field

List field.

get_value(*dictionary*)
Get value.

to_internal_value(*data*)
To internal value.

to_representation(*value*)
To representation.

12.19.1.1.5 Module contents

Fields.

class django_elasticsearch_dsl_drf.fields.**BooleanField**(*read_only=False*, *write_only=False*, *required=None*, *default=<class 'rest_framework.fields.empty'>*, *initial=<class 'rest_framework.fields.empty'>*, *source=None*, *label=None*, *help_text=None*, *style=None*, *error_messages=None*, *validators=None*, *allow_null=False*)
Bases: rest_framework.fields.BooleanField

Object field.

get_value(*dictionary*)
Get value.

to_representation(*value*)
To representation.

class django_elasticsearch_dsl_drf.fields.**CharField**(***kwargs*)
Bases: rest_framework.fields.CharField

Object field.

get_value(*dictionary*)
Get value.

to_representation(*value*)
To representation.

class django_elasticsearch_dsl_drf.fields.**DateField**(*format=<class 'rest_framework.fields.empty'>*, *input_formats=None*, **args*, ***kwargs*)
Bases: rest_framework.fields.DateField

Object field.

get_value(*dictionary*)
Get value.

to_representation(*value*)
To representation.

class django_elasticsearch_dsl_drf.fields.**FloatField**(***kwargs*)
Bases: rest_framework.fields.FloatField

Object field.

get_value(*dictionary*)
Get value.

to_representation(*value*)
To representation.

class django_elasticsearch_dsl_drf.fields.**GeoPointField**(*read_only=False*, *write_only=False*, *required=None*, *default=<class 'rest_framework.fields.empty'>*, *initial=<class 'rest_framework.fields.empty'>*, *source=None*, *label=None*, *help_text=None*, *style=None*, *error_messages=None*, *validators=None*, *allow_null=False*)
Bases: *django_elasticsearch_dsl_drf.fields.nested_fields.ObjectField*

Geo point field.

class django_elasticsearch_dsl_drf.fields.**GeoShapeField**(*read_only=False*, *write_only=False*, *required=None*, *default=<class 'rest_framework.fields.empty'>*, *initial=<class 'rest_framework.fields.empty'>*, *source=None*, *label=None*, *help_text=None*, *style=None*, *error_messages=None*, *validators=None*, *allow_null=False*)
Bases: *django_elasticsearch_dsl_drf.fields.nested_fields.ObjectField*

Geo shape field.

class django_elasticsearch_dsl_drf.fields.**IntegerField**(***kwargs*)
Bases: rest_framework.fields.IntegerField

Object field.

get_value(*dictionary*)
Get value.

to_representation(*value*)
To representation.

class django_elasticsearch_dsl_drf.fields.**IPAddressField**(*protocol='both'*, ***kwargs*)

Bases: rest_framework.fields.IPAddressField

Object field.

get_value(*dictionary*)
Get value.

to_representation(*value*)
To representation.

class django_elasticsearch_dsl_drf.fields.**ListField**(*read_only=False*, *write_only=False*, *required=None*, *default=<class 'rest_framework.fields.empty'>*, *initial=<class 'rest_framework.fields.empty'>*, *source=None*, *label=None*, *help_text=None*, *style=None*, *error_messages=None*, *validators=None*, *allow_null=False*)

Bases: rest_framework.fields.Field

List field.

get_value(*dictionary*)
Get value.

to_internal_value(*data*)
To internal value.

to_representation(*value*)
To representation.

class django_elasticsearch_dsl_drf.fields.**NestedField**(*read_only=False*, *write_only=False*, *required=None*, *default=<class 'rest_framework.fields.empty'>*, *initial=<class 'rest_framework.fields.empty'>*, *source=None*, *label=None*, *help_text=None*, *style=None*, *error_messages=None*, *validators=None*, *allow_null=False*)

Bases: *django_elasticsearch_dsl_drf.fields.nested_fields.ObjectField*

Nested field.

class django_elasticsearch_dsl_drf.fields.**ObjectField**(*read_only=False*, *write_only=False*, *required=None*, *default=<class 'rest_framework.fields.empty'>*, *initial=<class 'rest_framework.fields.empty'>*, *source=None*, *label=None*, *help_text=None*, *style=None*, *error_messages=None*, *validators=None*, *allow_null=False*)

Bases: rest_framework.fields.Field

Object field.

get_value(*dictionary*)
Get value.

to_internal_value(*data*)
To internal value.

to_representation(*value*)
To representation.

12.19.1.2 django_elasticsearch_dsl_drf.filter_backends package

12.19.1.2.1 Subpackages

12.19.1.2.1.1 django_elasticsearch_dsl_drf.filter_backends.aggregations package

12.19.1.2.1.2 Submodules

12.19.1.2.1.3 django_elasticsearch_dsl_drf.filter_backends.aggregations.bucket_aggregations module

12.19.1.2.1.4 django_elasticsearch_dsl_drf.filter_backends.aggregations.metrics_aggregations module

12.19.1.2.1.5 django_elasticsearch_dsl_drf.filter_backends.aggregations.pipeline_aggregations module

12.19.1.2.1.6 Module contents

12.19.1.2.1.7 django_elasticsearch_dsl_drf.filter_backends.filtering package

12.19.1.2.1.8 Submodules

12.19.1.2.1.9 django_elasticsearch_dsl_drf.filter_backends.filtering.common module

Common filtering backend.

class django_elasticsearch_dsl_drf.filter_backends.filtering.common.**FilteringFilterBackend**

Bases: rest_framework.filters.BaseFilterBackend, *django_elasticsearch_dsl_drf.filter_backends.mixins.FilterBackendMixin*

Filtering filter backend for Elasticsearch.

Example:

```
>>> from django_elasticsearch_dsl_drf.constants import (
>>>     LOOKUP_FILTER_PREFIX,
>>>     LOOKUP_FILTER_WILDCARD,
>>>     LOOKUP_QUERY_EXCLUDE,
>>>     LOOKUP_QUERY_ISNULL,
>>> )
>>> from django_elasticsearch_dsl_drf.filter_backends import (
>>>     FilteringFilterBackend
>>> )
>>> from django_elasticsearch_dsl_drf.viewsets import (
>>>     BaseDocumentViewSet,
>>> )
>>>
>>> # Local article document definition
>>> from .documents import ArticleDocument
>>>
>>> # Local article document serializer
>>> from .serializers import ArticleDocumentSerializer
>>>
>>> class ArticleDocumentView(BaseDocumentViewSet):
>>>
>>>     document = ArticleDocument
>>>     serializer_class = ArticleDocumentSerializer
>>>     filter_backends = [FilteringFilterBackend,]
>>>     filter_fields = {
>>>         'title': 'title.raw',
>>>         'state': {
>>>             'field': 'state.raw',
>>>             'lookups': [
>>>                 LOOKUP_FILTER_PREFIX,
>>>                 LOOKUP_FILTER_WILDCARD,
>>>                 LOOKUP_QUERY_EXCLUDE,
>>>                 LOOKUP_QUERY_ISNULL,
>>>             ],
>>>             'default_lookup': LOOKUP_FILTER_WILDCARD,
>>>         }
>>> }
```

classmethod apply_filter_prefix(*queryset*, *options*, *value*)

Apply *prefix* filter.

Syntax:

/endpoint/?field_name__prefix={value}

Example:

http://localhost:8000/api/articles/?tags__prefix=bio

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.

- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_filter_range(*queryset*, *options*, *value*)

Apply *range* filter.

Syntax:

/endpoint/?field_name__range={lower}__{upper}__{boost} /endpoint/?field_name__range={lower}__{upper}

Example:

http://localhost:8000/api/users/?age__range=16__67__2.0 http://localhost:8000/api/users/?age__range=16__67 http://localhost:8000/api/users/?age__range=16

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_filter_regexp(*queryset*, *options*, *value*)

Apply *reexp* filter.

Syntax:

/endpoint/?field_name__regexp={regexp}

Example:

http://localhost:8000/api/users/?age__regexp=1{[}6-9] http://localhost:8000/api/users/?age__regexp=2.*

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_filter_term(*queryset*, *options*, *value*)

Apply *term* filter.

Syntax:

/endpoint/?field_name={value}

Example:

http://localhost:8000/api/articles/?tags=children

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_filter_terms(*queryset*, *options*, *value*)

Apply *terms* filter.

Syntax:

/endpoint/?field_name__terms={value1}__{value2} /endpoint/?field_name__terms={value1}

Note, that number of values is not limited.

Example:

http://localhost:8000/api/articles/?tags__terms=children__python http://localhost:8000/api/articles/?tags__terms=children

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*mixed: either str or iterable (list, tuple)*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_query_contains(*queryset*, *options*, *value*)

Apply *contains* filter.

Syntax:

/endpoint/?field_name__contains={value}

Example:

http://localhost:8000/api/articles/?state__contains=lis

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_query_endswith(*queryset*, *options*, *value*)
Apply *endswith* filter.

Syntax:

/endpoint/?field_name__endswith={value}

Example:

http://localhost:8000/api/articles/?tags__endswith=dren

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_query_exclude(*queryset*, *options*, *value*)
Apply *exclude* functional query.

Syntax:

/endpoint/?field_name__isnull={value1}__{value2} /endpoint/?field_name__exclude={valu1}

Note, that number of values is not limited.

Example:

http://localhost:8000/api/articles/?tags__exclude=children__python http://localhost:8000/api/articles/?tags__exclude=children

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_query_exists(*queryset*, *options*, *value*)
Apply *exists* filter.

Syntax:

/endpoint/?field_name__exists=true /endpoint/?field_name__exists=false

Example:

http://localhost:8000/api/articles/?tags__exists=true http://localhost:8000/api/articles/?tags__exists=false

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.

- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_query_gt(*queryset*, *options*, *value*)

Apply *gt* functional query.

Syntax:

/endpoint/?field_name__gt={value}__{boost} /endpoint/?field_name__gt={value}

Example:

http://localhost:8000/api/articles/?id__gt=1__2.0 http://localhost:8000/api/articles/?id__gt=1

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_query_gte(*queryset*, *options*, *value*)

Apply *gte* functional query.

Syntax:

/endpoint/?field_name__gte={value}__{boost} /endpoint/?field_name__gte={value}

Example:

http://localhost:8000/api/articles/?id__gte=1__2.0 http://localhost:8000/api/articles/?id__gte=1

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_query_in(*queryset*, *options*, *value*)

Apply *in* functional query.

Syntax:

/endpoint/?field_name__in={value1}__{value2} /endpoint/?field_name__in={value1}

Note, that number of values is not limited.

Example:

http://localhost:8000/api/articles/?tags__in=children__python

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_query_isnull(*queryset*, *options*, *value*)

Apply *isnull* functional query.

Syntax:

/endpoint/?field_name__isnull=true /endpoint/?field_name__isnull=false

Example:

http://localhost:8000/api/articles/?tags__isnull=true http://localhost:8000/api/articles/?tags__isnull=false

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_query_lt(*queryset*, *options*, *value*)

Apply *lt* functional query.

Syntax:

/endpoint/?field_name__lt={value}__{boost} /endpoint/?field_name__lt={value}

Example:

http://localhost:8000/api/articles/?id__lt=1__2.0 http://localhost:8000/api/articles/?id__lt=1

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_query_lte(*queryset*, *options*, *value*)

Apply *lte* functional query.

Syntax:

/endpoint/?field_name__lte={value}__{boost} /endpoint/?field_name__lte={value}

Example:

http://localhost:8000/api/articles/?id__lte=1__2.0 http://localhost:8000/api/articles/?id__lte=1

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_query_wildcard(*queryset*, *options*, *value*)
Apply *wildcard* filter.

Syntax:

/endpoint/?field_name__wildcard={value}* /endpoint/?field_name__wildcard=*{value} /endpoint/?field_name__wildcard=*{value}*

Example:

http://localhost:8000/api/articles/?tags__wildcard=child*

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

filter_queryset(*request*, *queryset*, *view*)
Filter the queryset.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.

Return type elasticsearch_dsl.search.Search

get_coreschema_field(*field*)

get_filter_query_params(*request*, *view*)
Get query params to be filtered on.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Request query params to filter on.

Return type dict

classmethod get_gte_lte_params(*value*, *lookup*)
Get params for *gte*, *gt*, *lte* and *lt* query.

Syntax:

/endpoint/?field_name__gt={lower}__{boost} /endpoint/?field_name__gt={lower}

Example:

http://localhost:8000/api/articles/?id__gt=1 http://localhost:8000/api/articles/?id__gt=1__2.0

Parameters

- **value** (*str*) –
- **lookup** (*str*) –

Returns Params to be used in *range* query.

Return type dict

classmethod get_range_params(*value*)
Get params for *range* query.

Syntax:

/endpoint/?field_name__range={lower}__{upper}__{boost} /endpoint/?field_name__range={lower}__{upper}

Example:

http://localhost:8000/api/users/?age__range=16__67__2.0 http://localhost:8000/api/users/?age__range=16__67 http://localhost:8000/api/users/?age__range=16

Parameters **value** –

Type str

Returns Params to be used in *range* query.

Return type dict

get_schema_fields(*view*)

classmethod prepare_filter_fields(*view*)
Prepare filter fields.

Parameters **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) –

Returns Filtering options.

Return type dict

12.19.1.2.1.10 django_elasticsearch_dsl_drf.filter_backends.filtering.geo_spatial module

Geo spatial filtering backend.

Elasticsearch supports two types of geo data:

- geo_point fields which support lat/lon pairs
- geo_shape fields, which support points, lines, circles, polygons, multi-polygons etc.

The queries in this group are:

- geo_shape query: Find document with geo-shapes which either intersect, are contained by, or do not intersect with the specified geo-shape.
- geo_bounding_box query: Finds documents with geo-points that fall into the specified rectangle.
- geo_distance query: Finds document with geo-points within the specified distance of a central point.
- geo_distance_range query: Like the geo_distance query, but the range starts at a specified distance from the central point. Note, that this one is deprecated and this isn't implemented.
- geo_polygon query: Find documents with geo-points within the specified polygon.

class django_elasticsearch_dsl_drf.filter_backends.filtering.geo_spatial.**GeoSpatialFilteri**

Bases: rest_framework.filters.BaseFilterBackend, *django_elasticsearch_dsl_drf.filter_backends.mixins.FilterBackendMixin*

Geo-spatial filtering filter backend for Elasticsearch.

Example:

```
>>> from django_elasticsearch_dsl_drf.constants import (
>>>     LOOKUP_FILTER_GEO_DISTANCE,
>>> )
>>> from django_elasticsearch_dsl_drf.filter_backends import (
>>>     GeoSpatialFilteringFilterBackend
>>> )
>>> from django_elasticsearch_dsl_drf.viewsets import (
>>>     BaseDocumentViewSet,
>>> )
>>>
>>> # Local article document definition
>>> from .documents import ArticleDocument
>>>
>>> # Local article document serializer
>>> from .serializers import ArticleDocumentSerializer
>>>
>>> class ArticleDocumentView(BaseDocumentViewSet):
>>>
>>>     document = ArticleDocument
>>>     serializer_class = ArticleDocumentSerializer
>>>     filter_backends = [GeoSpatialFilteringFilterBackend,]
>>>     geo_spatial_filter_fields = {
>>>         'loc': 'location',
>>>         'location': {
>>>             'field': 'location',
>>>             'lookups': [
>>>                 LOOKUP_FILTER_GEO_DISTANCE,
>>>             ],
>>>         }
>>> }
```

classmethod apply_query_geo_bounding_box(*queryset*, *options*, *value*)

Apply *geo_bounding_box* query.

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_query_geo_distance(*queryset*, *options*, *value*)
Apply *geo_distance* query.

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_query_geo_polygon(*queryset*, *options*, *value*)
Apply *geo_polygon* query.

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_query_geo_shape(*queryset*, *options*, *value*)
Apply *geo_shape* query.

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

filter_queryset(*request*, *queryset*, *view*)
Filter the queryset.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.

Return type elasticsearch_dsl.search.Search

get_filter_query_params(*request*, *view*)
Get query params to be filtered on.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Request query params to filter on.

Return type dict

classmethod get_geo_bounding_box_params(*value*, *field*)

Get params for *geo_bounding_box* query.

Example:

/api/articles/?location__geo_bounding_box=40.73,-74.1__40.01,-71.12

Example:

/api/articles/?location__geo_polygon=40.73,-74.1 __40.01,-71.12 ___name,myname __validation_method,IGNORE_MALFORMED __type,indexed

Elasticsearch:

{

"query": {

"bool" [{]

"must" [{] "match_all" : {}

}, "filter" : {

"geo_bounding_box" [{]

"person.location" [{]

"top_left" [{] "lat" : 40.73, "lon" : -74.1

}, "bottom_right" : {

"lat" : 40.01, "lon" : -71.12

}

}

}

}

}

}

Parameters

- **value** (*str*) –
- **field** –

Returns Params to be used in *geo_bounding_box* query.

Return type dict

classmethod get_geo_distance_params(*value*, *field*)

Get params for *geo_distance* query.

Example:

/api/articles/?location__geo_distance=2km__43.53__-12.23

Parameters

- **value** (*str*) –
- **field** –

Returns Params to be used in *geo_distance* query.
Return type dict

classmethod get_geo_polygon_params(*value*, *field*)
Get params for *geo_polygon* query.

Example:
/api/articles/?location__geo_polygon=40,-70__30,-80__20,-90
Example:
/api/articles/?location__geo_polygon=40,-70 __30,-80 __20,-90 ___name,myname __validation_method,IGNORE_MALFORMED
Elasticsearch:

{

"query": {

"bool" [{]

"must" [{] "match_all" : {}

}, "filter" : {

"geo_polygon" [{]

"person.location" [{]

"points" [[] {"lat" : 40, "lon" : -70}, {"lat" : 30, "lon" : -80}, {"lat" : 20, "lon" : -90}

]

}

}

}

}

}

Parameters

- **value** (*str*) –
- **field** –

Returns Params to be used in *geo_distance* query.
Return type dict

classmethod get_geo_shape_params(*value*, *field*)
Get params for *geo_shape* query.

Example:
/search/publishers/?location__geo_shape=48.9864453,6.37977 __relation,intersects __type,circle __radius,20km
Example:

/search/publishers/?location__geo_shape=48.906254,6.378593 __48.985850,6.479359 __relation,within __type,envelope

Elasticsearch:

{

"query": {

"bool" [{]

"must" [{] "match_all" : {}

}, "filter" : {

"geo_shape" [{]

"location" [{]

"shape": { "type": "circle", "coordinates": [48.9864453, 6.37977], "radius": "20km"

}, "relation": "intersects"

}

}

}

}

}

}

Parameters

- **value** (*str*) –
- **field** –

Returns Params to be used in *geo_shape* query.

Return type dict

classmethod prepare_filter_fields(*view*)

Prepare filter fields.

Parameters **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) –

Returns Filtering options.

Return type dict

12.19.1.2.1.11 django_elasticsearch_dsl_drf.filter_backends.filtering.ids module

Ids filtering backend.

Filters documents that only have the provided ids. Note, this query uses the *_uid* field.

Elastic query:

{

"query": {

"ids": { "type": "book_document", "values": ["68", "64", "58"]

}

```
        }
    }
```

REST framework request equivalent:

- http://localhost:8000/api/articles/?ids=68__64__58
- http://localhost:8000/api/articles/?ids=68&ids=64&ids=58

Official Elastic docs:

- https://www.elastic.co/guide/en/elasticsearch/reference/current/ query-dsl-ids-query.html

class django_elasticsearch_dsl_drf.filter_backends.filtering.ids.**IdsFilterBackend**

Bases: rest_framework.filters.BaseFilterBackend, *django_elasticsearch_dsl_drf.filter_backends.mixins.FilterBackendMixin*

Ids filter backend for Elasticsearch.

Example:

```
>>> from django_elasticsearch_dsl_drf.filter_backends import (
>>>     IdsFilterBackend
>>> )
>>> from django_elasticsearch_dsl_drf.viewsets import (
>>>     BaseDocumentViewSet,
>>> )
>>>
>>> # Local article document definition
>>> from .documents import ArticleDocument
>>>
>>> # Local article document serializer
>>> from .serializers import ArticleDocumentSerializer
>>>
>>> class ArticleDocumentView(BaseDocumentViewSet):
>>>
>>>     document = ArticleDocument
>>>     serializer_class = ArticleDocumentSerializer
>>>     filter_backends = [IdsFilterBackend]
```

filter_queryset(*request*, *queryset*, *view*)

Filter the queryset.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.

Return type elasticsearch_dsl.search.Search

get_ids_query_params(*request*)

Get search query params.

Parameters **request** (*rest_framework.request.Request*) – Django REST framework request.

Returns List of search query params.

Return type list

get_ids_values(*request*, *view*)
Get ids values for query.
Parameters
- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.
Return type elasticsearch_dsl.search.Search

ids_query_param = 'ids'

12.19.1.2.1.12 django_elasticsearch_dsl_drf.filter_backends.filtering.nested module

Nested filtering backend.

class django_elasticsearch_dsl_drf.filter_backends.filtering.nested.**NestedFilteringFilterBa**
Bases: *django_elasticsearch_dsl_drf.filter_backends.filtering.common.FilteringFilterBackend*

Nested filter backend.

Example:

```
>>> from django_elasticsearch_dsl_drf.constants import (
>>>     LOOKUP_FILTER_TERM,
>>>     LOOKUP_FILTER_PREFIX,
>>>     LOOKUP_FILTER_WILDCARD,
>>>     LOOKUP_QUERY_EXCLUDE,
>>>     LOOKUP_QUERY_ISNULL,
>>> )
>>> from django_elasticsearch_dsl_drf.filter_backends import (
>>>     NestedFilteringFilterBackend
>>> )
>>> from django_elasticsearch_dsl_drf.viewsets import (
>>>     BaseDocumentViewSet,
>>> )
>>>
>>> # Local article document definition
>>> from .documents import ArticleDocument
>>>
>>> # Local article document serializer
>>> from .serializers import ArticleDocumentSerializer
>>>
>>> class ArticleDocumentView(BaseDocumentViewSet):
>>>
>>>     document = ArticleDocument
>>>     serializer_class = ArticleDocumentSerializer
>>>     filter_backends = [NestedFilteringFilterBackend,]
>>>     nested_filter_fields = {
>>>         'country': {
>>>             'field': 'continent.country.name.raw',
>>>             'path': 'continent.country',
>>>             'lookups': [
```

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```
>>>                     LOOKUP_FILTER_TERM,
>>>                     LOOKUP_FILTER_TERMS,
>>>                     LOOKUP_FILTER_PREFIX,
>>>                     LOOKUP_FILTER_WILDCARD,
>>>                     LOOKUP_QUERY_EXCLUDE,
>>>                     LOOKUP_QUERY_ISNULL,
>>>                 ],
>>>             }
>>> }
```

classmethod apply_filter(*queryset*, *options=None*, *args=None*, *kwargs=None*)

Apply filter.

Parameters

- **queryset** –
- **options** –
- **args** –
- **kwargs** –

Returns

classmethod apply_query(*queryset*, *options=None*, *args=None*, *kwargs=None*)

Apply query.

Parameters

- **queryset** –
- **options** –
- **args** –
- **kwargs** –

Returns

get_coreschema_field(*field*)

get_filter_field_nested_path(*filter_fields*, *field_name*)

Get filter field path to be used in nested query.

Parameters

- **filter_fields** –
- **field_name** –

Returns

get_filter_query_params(*request*, *view*)

Get query params to be filtered on.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Request query params to filter on.

Return type dict

get_schema_fields(*view*)

classmethod prepare_filter_fields(*view*)
Prepare filter fields.
Parameters **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) –
Returns Filtering options.
Return type dict

12.19.1.2.1.13 django_elasticsearch_dsl_drf.filter_backends.filtering.post_filter module

The `post_filter` filtering backend.

class django_elasticsearch_dsl_drf.filter_backends.filtering.post_filter.**PostFilterFilteri**
Bases: *django_elasticsearch_dsl_drf.filter_backends.filtering.common.FilteringFilterBackend*

The `post_filter` filtering filter backend for Elasticsearch.

Example:

```
>>> from django_elasticsearch_dsl_drf.constants import (
>>>     LOOKUP_FILTER_PREFIX,
>>>     LOOKUP_FILTER_WILDCARD,
>>>     LOOKUP_QUERY_EXCLUDE,
>>>     LOOKUP_QUERY_ISNULL,
>>> )
>>> from django_elasticsearch_dsl_drf.filter_backends import (
>>>     PostFilterFilteringFilterBackend
>>> )
>>> from django_elasticsearch_dsl_drf.viewsets import (
>>>     BaseDocumentViewSet,
>>> )
>>>
>>> # Local article document definition
>>> from .documents import ArticleDocument
>>>
>>> # Local article document serializer
>>> from .serializers import ArticleDocumentSerializer
>>>
>>> class ArticleDocumentView(BaseDocumentViewSet):
>>>
>>>     document = ArticleDocument
>>>     serializer_class = ArticleDocumentSerializer
>>>     filter_backends = [PostFilterFilteringFilterBackend,]
>>>     post_filter_fields = {
>>>         'title': 'title.raw',
>>>         'state': {
>>>             'field': 'state.raw',
>>>             'lookups': [
>>>                 LOOKUP_FILTER_PREFIX,
>>>                 LOOKUP_FILTER_WILDCARD,
>>>                 LOOKUP_QUERY_EXCLUDE,
>>>                 LOOKUP_QUERY_ISNULL,
>>>             ],
>>>         }
>>> }
```

classmethod apply_filter(*queryset*, *options=None*, *args=None*, *kwargs=None*)
Apply filter.
Parameters

- **queryset** –
- **options** –
- **args** –
- **kwargs** –

Returns

classmethod apply_query(*queryset*, *options=None*, *args=None*, *kwargs=None*)

Apply query.

Parameters

- **queryset** –
- **options** –
- **args** –
- **kwargs** –

Returns

get_coreschema_field(*field*)

get_schema_fields(*view*)

classmethod prepare_filter_fields(*view*)

Prepare filter fields.

Parameters **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) –

Returns Filtering options.

Return type dict

12.19.1.2.1.14 Module contents

Term level filtering and `post_filter` backends.

class django_elasticsearch_dsl_drf.filter_backends.filtering.**FilteringFilterBackend**

Bases: `rest_framework.filters.BaseFilterBackend`, *django_elasticsearch_dsl_drf.filter_backends.mixins.FilterBackendMixin*

Filtering filter backend for Elasticsearch.

Example:

```
>>> from django_elasticsearch_dsl_drf.constants import (
>>>     LOOKUP_FILTER_PREFIX,
>>>     LOOKUP_FILTER_WILDCARD,
>>>     LOOKUP_QUERY_EXCLUDE,
>>>     LOOKUP_QUERY_ISNULL,
>>> )
>>> from django_elasticsearch_dsl_drf.filter_backends import (
>>>     FilteringFilterBackend
>>> )
>>> from django_elasticsearch_dsl_drf.viewsets import (
>>>     BaseDocumentViewSet,
>>> )
>>>
>>> # Local article document definition
>>> from .documents import ArticleDocument
>>>
>>> # Local article document serializer
```

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```
>>> from .serializers import ArticleDocumentSerializer
>>>
>>> class ArticleDocumentView(BaseDocumentViewSet):
>>>
>>>     document = ArticleDocument
>>>     serializer_class = ArticleDocumentSerializer
>>>     filter_backends = [FilteringFilterBackend,]
>>>     filter_fields = {
>>>         'title': 'title.raw',
>>>         'state': {
>>>             'field': 'state.raw',
>>>             'lookups': [
>>>                 LOOKUP_FILTER_PREFIX,
>>>                 LOOKUP_FILTER_WILDCARD,
>>>                 LOOKUP_QUERY_EXCLUDE,
>>>                 LOOKUP_QUERY_ISNULL,
>>>             ],
>>>             'default_lookup': LOOKUP_FILTER_WILDCARD,
>>>         }
>>> }
```

classmethod apply_filter_prefix(*queryset*, *options*, *value*)

Apply *prefix* filter.

Syntax:

/endpoint/?field_name__prefix={value}

Example:

http://localhost:8000/api/articles/?tags__prefix=bio

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_filter_range(*queryset*, *options*, *value*)

Apply *range* filter.

Syntax:

/endpoint/?field_name__range={lower}__{upper}__{boost} /endpoint/?field_name__range={lower}__{upper}

Example:

http://localhost:8000/api/users/?age__range=16__67__2.0 http://localhost:8000/api/users/?age__range=16__67 http://localhost:8000/api/users/?age__range=16

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_filter_regexp(*queryset*, *options*, *value*)

Apply *reexp* filter.

Syntax:

/endpoint/?field_name__regexp={regexp}

Example:

http://localhost:8000/api/users/?age__regexp=1{[}6-9] http://localhost:8000/api/users/?age__regexp=2.*

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_filter_term(*queryset*, *options*, *value*)

Apply *term* filter.

Syntax:

/endpoint/?field_name={value}

Example:

http://localhost:8000/api/articles/?tags=children

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_filter_terms(*queryset*, *options*, *value*)

Apply *terms* filter.

Syntax:

/endpoint/?field_name__terms={value1}__{value2} /endpoint/?field_name__terms={value1}

Note, that number of values is not limited.

Example:

http://localhost:8000/api/articles/?tags__terms=children__python http://localhost:8000/api/articles/?tags__terms=children

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*mixed: either str or iterable (list, tuple)*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_query_contains(*queryset*, *options*, *value*)

Apply *contains* filter.

Syntax:
/endpoint/?field_name__contains={value}
Example:
http://localhost:8000/api/articles/?state__contains=lis

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.
Return type elasticsearch_dsl.search.Search

classmethod apply_query_endswith(*queryset*, *options*, *value*)
Apply *endswith* filter.

Syntax:
/endpoint/?field_name__endswith={value}
Example:
http://localhost:8000/api/articles/?tags__endswith=dren

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.
Return type elasticsearch_dsl.search.Search

classmethod apply_query_exclude(*queryset*, *options*, *value*)
Apply *exclude* functional query.

Syntax:
/endpoint/?field_name__isnull={value1}__{value2} /endpoint/?field_name__exclude={valu1}
Note, that number of values is not limited.

Example:
http://localhost:8000/api/articles/?tags__exclude=children__python http://localhost:8000/api/articles/?tags__exclude=children

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.
Return type elasticsearch_dsl.search.Search

classmethod apply_query_exists(*queryset*, *options*, *value*)
Apply *exists* filter.

Syntax:
/endpoint/?field_name__exists=true /endpoint/?field_name__exists=false
Example:

http://localhost:8000/api/articles/?tags__exists=true http://localhost:8000/api/articles/?tags__exists=false

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.
Return type elasticsearch_dsl.search.Search

classmethod apply_query_gt(*queryset*, *options*, *value*)

Apply *gt* functional query.

Syntax:
/endpoint/?field_name__gt={value}__{boost} /endpoint/?field_name__gt={value}
Example:
http://localhost:8000/api/articles/?id__gt=1__2.0 http://localhost:8000/api/articles/?id__gt=1

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.
Return type elasticsearch_dsl.search.Search

classmethod apply_query_gte(*queryset*, *options*, *value*)

Apply *gte* functional query.

Syntax:
/endpoint/?field_name__gte={value}__{boost} /endpoint/?field_name__gte={value}
Example:
http://localhost:8000/api/articles/?id__gte=1__2.0 http://localhost:8000/api/articles/?id__gte=1

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.
Return type elasticsearch_dsl.search.Search

classmethod apply_query_in(*queryset*, *options*, *value*)

Apply *in* functional query.

Syntax:
/endpoint/?field_name__in={value1}__{value2} /endpoint/?field_name__in={value1}
Note, that number of values is not limited.

Example:
http://localhost:8000/api/articles/?tags__in=children__python

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.
Return type elasticsearch_dsl.search.Search

classmethod apply_query_isnull(*queryset*, *options*, *value*)

Apply *isnull* functional query.

Syntax:
/endpoint/?field_name__isnull=true /endpoint/?field_name__isnull=false
Example:
http://localhost:8000/api/articles/?tags__isnull=true http://localhost:8000/api/articles/?tags__isnull=false

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.
Return type elasticsearch_dsl.search.Search

classmethod apply_query_lt(*queryset*, *options*, *value*)

Apply *lt* functional query.

Syntax:
/endpoint/?field_name__lt={value}__{boost} /endpoint/?field_name__lt={value}
Example:
http://localhost:8000/api/articles/?id__lt=1__2.0 http://localhost:8000/api/articles/?id__lt=1

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.
Return type elasticsearch_dsl.search.Search

classmethod apply_query_lte(*queryset*, *options*, *value*)

Apply *lte* functional query.

Syntax:
/endpoint/?field_name__lte={value}__{boost} /endpoint/?field_name__lte={value}
Example:
http://localhost:8000/api/articles/?id__lte=1__2.0 http://localhost:8000/api/articles/?id__lte=1

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.

- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.
Return type elasticsearch_dsl.search.Search

classmethod apply_query_wildcard(*queryset*, *options*, *value*)
Apply *wildcard* filter.

Syntax:
/endpoint/?field_name__wildcard={value}* /endpoint/?field_name__wildcard=*{value} /endpoint/?field_name__wildcard=*{value}*
Example:
http://localhost:8000/api/articles/?tags__wildcard=child*

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.
Return type elasticsearch_dsl.search.Search

filter_queryset(*request*, *queryset*, *view*)
Filter the queryset.
Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.
Return type elasticsearch_dsl.search.Search

get_coreschema_field(*field*)

get_filter_query_params(*request*, *view*)
Get query params to be filtered on.
Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Request query params to filter on.
Return type dict

classmethod get_gte_lte_params(*value*, *lookup*)
Get params for *gte*, *gt*, *lte* and *lt* query.

Syntax:
/endpoint/?field_name__gt={lower}__{boost} /endpoint/?field_name__gt={lower}
Example:
http://localhost:8000/api/articles/?id__gt=1 http://localhost:8000/api/articles/?id__gt=1__2.0

Parameters

- **value** (*str*) –
- **lookup** (*str*) –

Returns Params to be used in *range* query.
Return type dict

classmethod get_range_params(*value*)
Get params for *range* query.

Syntax:
/endpoint/?field_name__range={lower}__{upper}__{boost} /endpoint/?field_name__range={lower}__{upper}
Example:
http://localhost:8000/api/users/?age__range=16__67__2.0 http://localhost:8000/api/users/?age__range=16__67 http://localhost:8000/api/users/?age__range=16

Parameters **value** –
Type str
Returns Params to be used in *range* query.
Return type dict

get_schema_fields(*view*)

classmethod prepare_filter_fields(*view*)
Prepare filter fields.
Parameters **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) –
Returns Filtering options.
Return type dict

class django_elasticsearch_dsl_drf.filter_backends.filtering.**GeoSpatialFilteringFilterBacke**
Bases: rest_framework.filters.BaseFilterBackend, *django_elasticsearch_dsl_drf.filter_backends.mixins.FilterBackendMixin*

Geo-spatial filtering filter backend for Elasticsearch.

Example:

```
>>> from django_elasticsearch_dsl_drf.constants import (
>>>     LOOKUP_FILTER_GEO_DISTANCE,
>>> )
>>> from django_elasticsearch_dsl_drf.filter_backends import (
>>>     GeoSpatialFilteringFilterBackend
>>> )
>>> from django_elasticsearch_dsl_drf.viewsets import (
>>>     BaseDocumentViewSet,
>>> )
>>>
>>> # Local article document definition
>>> from .documents import ArticleDocument
>>>
>>> # Local article document serializer
>>> from .serializers import ArticleDocumentSerializer
>>>
>>> class ArticleDocumentView(BaseDocumentViewSet):
>>>
>>>     document = ArticleDocument
>>>     serializer_class = ArticleDocumentSerializer
>>>     filter_backends = [GeoSpatialFilteringFilterBackend,]
```

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```
>>>     geo_spatial_filter_fields = {
>>>         'loc': 'location',
>>>         'location': {
>>>             'field': 'location',
>>>             'lookups': [
>>>                 LOOKUP_FILTER_GEO_DISTANCE,
>>>             ],
>>>         }
>>> }
```

classmethod apply_query_geo_bounding_box(*queryset*, *options*, *value*)

Apply *geo_bounding_box* query.

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_query_geo_distance(*queryset*, *options*, *value*)

Apply *geo_distance* query.

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_query_geo_polygon(*queryset*, *options*, *value*)

Apply *geo_polygon* query.

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_query_geo_shape(*queryset*, *options*, *value*)

Apply *geo_shape* query.

Parameters

- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

filter_queryset(*request*, *queryset*, *view*)

Filter the queryset.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.

Return type elasticsearch_dsl.search.Search

get_filter_query_params(*request*, *view*)

Get query params to be filtered on.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Request query params to filter on.

Return type dict

classmethod get_geo_bounding_box_params(*value*, *field*)

Get params for *geo_bounding_box* query.

Example:
/api/articles/?location__geo_bounding_box=40.73,-74.1__40.01,-71.12
Example:
/api/articles/?location__geo_polygon=40.73,-74.1 __40.01,-71.12 ___name,myname __validation_method,IGNORE_MALFORMED __type,indexed
Elasticsearch:

{

"query": {

"bool" [{]

"must" [{] "match_all" : {}

}, "filter" : {

"geo_bounding_box" [{]

"person.location" [{]

"top_left" [{] "lat" : 40.73, "lon" : -74.1

}, "bottom_right" : {

"lat" : 40.01, "lon" : -71.12

}

}

}

}

}

}

}

Parameters

- **value** (*str*) –
- **field** –

Returns Params to be used in *geo_bounding_box* query.

Return type dict

classmethod get_geo_distance_params(*value*, *field*)

Get params for *geo_distance* query.

Example:
/api/articles/?location__geo_distance=2km__43.53__-12.23

Parameters

- **value** (*str*) –
- **field** –

Returns Params to be used in *geo_distance* query.

Return type dict

classmethod get_geo_polygon_params(*value*, *field*)

Get params for *geo_polygon* query.

Example:
/api/articles/?location__geo_polygon=40,-70__30,-80__20,-90

Example:
/api/articles/?location__geo_polygon=40,-70 __30,-80 __20,-90 ___name,myname __validation_method,IGNORE_MALFORMED

Elasticsearch:

{

“query”: {

“bool” [{]

“must” [{] “match_all” : {}

}, “filter” : {

“geo_polygon” [{]

“person.location” [{]

“points” [[] {“lat” : 40, “lon” : -70}, {“lat” : 30, “lon” : -80}, {“lat” : 20, “lon” : -90}

]

}

}

}

}

}

Parameters

- **value** (*str*) –
- **field** –

Returns Params to be used in *geo_distance* query.
Return type dict

classmethod get_geo_shape_params(*value*, *field*)
Get params for *geo_shape* query.

Example:
/search/publishers/?location__geo_shape=48.9864453,6.37977 __relation,intersects __type,circle __radius,20km
Example:
/search/publishers/?location__geo_shape=48.906254,6.378593 __48.985850,6.479359 __relation,within __type,envelope
Elasticsearch:
{
"query": {
"bool" [{]
"must" [{] "match_all" : {}
}, "filter" : {
"geo_shape" [{]
"location" [{]
"shape": { "type": "circle", "coordinates": [48.9864453, 6.37977], "radius": "20km"
}, "relation": "intersects"
}
}
}
}
}

Parameters

- **value** (*str*) –
- **field** –

Returns Params to be used in *geo_shape* query.
Return type dict

classmethod prepare_filter_fields(*view*)
Prepare filter fields.
Parameters **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) –
Returns Filtering options.
Return type dict

class django_elasticsearch_dsl_drf.filter_backends.filtering.**IdsFilterBackend**
Bases: rest_framework.filters.BaseFilterBackend, *django_elasticsearch_dsl_drf.filter_backends.mixins.FilterBackendMixin*

Ids filter backend for Elasticsearch.

Example:

```
>>> from django_elasticsearch_dsl_drf.filter_backends import (
>>>     IdsFilterBackend
>>> )
>>> from django_elasticsearch_dsl_drf.viewsets import (
>>>     BaseDocumentViewSet,
>>> )
>>>
>>> # Local article document definition
>>> from .documents import ArticleDocument
>>>
>>> # Local article document serializer
>>> from .serializers import ArticleDocumentSerializer
>>>
>>> class ArticleDocumentView(BaseDocumentViewSet):
>>>
>>>     document = ArticleDocument
>>>     serializer_class = ArticleDocumentSerializer
>>>     filter_backends = [IdsFilterBackend]
```

filter_queryset (*request*, *queryset*, *view*)

Filter the queryset.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.

Return type elasticsearch_dsl.search.Search

get_ids_query_params (*request*)

Get search query params.

Parameters **request** (*rest_framework.request.Request*) – Django REST framework request.

Returns List of search query params.

Return type list

get_ids_values (*request*, *view*)

Get ids values for query.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.

Return type elasticsearch_dsl.search.Search

ids_query_param = 'ids'

class django_elasticsearch_dsl_drf.filter_backends.filtering.**NestedFilteringFilterBackend**

Bases: *django_elasticsearch_dsl_drf.filter_backends.filtering.common.FilteringFilterBackend*

Nested filter backend.

Example:

```
>>> from django_elasticsearch_dsl_drf.constants import (
>>>     LOOKUP_FILTER_TERM,
>>>     LOOKUP_FILTER_PREFIX,
>>>     LOOKUP_FILTER_WILDCARD,
>>>     LOOKUP_QUERY_EXCLUDE,
>>>     LOOKUP_QUERY_ISNULL,
>>> )
>>> from django_elasticsearch_dsl_drf.filter_backends import (
>>>     NestedFilteringFilterBackend
>>> )
>>> from django_elasticsearch_dsl_drf.viewsets import (
>>>     BaseDocumentViewSet,
>>> )
>>>
>>> # Local article document definition
>>> from .documents import ArticleDocument
>>>
>>> # Local article document serializer
>>> from .serializers import ArticleDocumentSerializer
>>>
>>> class ArticleDocumentView(BaseDocumentViewSet):
>>>
>>>     document = ArticleDocument
>>>     serializer_class = ArticleDocumentSerializer
>>>     filter_backends = [NestedFilteringFilterBackend,]
>>>     nested_filter_fields = {
>>>         'country': {
>>>             'field': 'continent.country.name.raw',
>>>             'path': 'continent.country',
>>>             'lookups': [
>>>                 LOOKUP_FILTER_TERM,
>>>                 LOOKUP_FILTER_TERMS,
>>>                 LOOKUP_FILTER_PREFIX,
>>>                 LOOKUP_FILTER_WILDCARD,
>>>                 LOOKUP_QUERY_EXCLUDE,
>>>                 LOOKUP_QUERY_ISNULL,
>>>             ],
>>>         }
>>> }
```

classmethod apply_filter(*queryset*, *options=None*, *args=None*, *kwargs=None*)

Apply filter.

Parameters

- **queryset** –
- **options** –
- **args** –
- **kwargs** –

Returns

classmethod apply_query(*queryset*, *options=None*, *args=None*, *kwargs=None*)
Apply query.
Parameters
- **queryset** –
- **options** –
- **args** –
- **kwargs** –

Returns

get_coreschema_field(*field*)

get_filter_field_nested_path(*filter_fields*, *field_name*)
Get filter field path to be used in nested query.
Parameters
- **filter_fields** –
- **field_name** –

Returns

get_filter_query_params(*request*, *view*)
Get query params to be filtered on.
Parameters
- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Request query params to filter on.
Return type dict

get_schema_fields(*view*)

classmethod prepare_filter_fields(*view*)
Prepare filter fields.
Parameters **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) –
Returns Filtering options.
Return type dict

class django_elasticsearch_dsl_drf.filter_backends.filtering.**PostFilterFilteringFilterBacke**
Bases: *django_elasticsearch_dsl_drf.filter_backends.filtering.common.FilteringFilterBackend*

The `post_filter` filtering filter backend for Elasticsearch.

Example:

```
>>> from django_elasticsearch_dsl_drf.constants import (
>>>     LOOKUP_FILTER_PREFIX,
>>>     LOOKUP_FILTER_WILDCARD,
>>>     LOOKUP_QUERY_EXCLUDE,
>>>     LOOKUP_QUERY_ISNULL,
>>> )
>>> from django_elasticsearch_dsl_drf.filter_backends import (
>>>     PostFilterFilteringFilterBackend
>>> )
>>> from django_elasticsearch_dsl_drf.viewsets import (
```

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```
>>>     BaseDocumentViewSet,
>>> )
>>>
>>> # Local article document definition
>>> from .documents import ArticleDocument
>>>
>>> # Local article document serializer
>>> from .serializers import ArticleDocumentSerializer
>>>
>>> class ArticleDocumentView(BaseDocumentViewSet):
>>>
>>>     document = ArticleDocument
>>>     serializer_class = ArticleDocumentSerializer
>>>     filter_backends = [PostFilterFilteringFilterBackend,]
>>>     post_filter_fields = {
>>>         'title': 'title.raw',
>>>         'state': {
>>>             'field': 'state.raw',
>>>             'lookups': [
>>>                 LOOKUP_FILTER_PREFIX,
>>>                 LOOKUP_FILTER_WILDCARD,
>>>                 LOOKUP_QUERY_EXCLUDE,
>>>                 LOOKUP_QUERY_ISNULL,
>>>             ],
>>>         }
>>> }
```

classmethod apply_filter(*queryset*, *options=None*, *args=None*, *kwargs=None*)

Apply filter.

Parameters

- **queryset** –
- **options** –
- **args** –
- **kwargs** –

Returns

classmethod apply_query(*queryset*, *options=None*, *args=None*, *kwargs=None*)

Apply query.

Parameters

- **queryset** –
- **options** –
- **args** –
- **kwargs** –

Returns

get_coreschema_field(*field*)

get_schema_fields(*view*)

classmethod prepare_filter_fields(*view*)

Prepare filter fields.

Parameters **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) –

Returns Filtering options.

Return type dict

12.19.1.2.1.15 django_elasticsearch_dsl_drf.filter_backends.ordering package

12.19.1.2.1.16 Submodules

12.19.1.2.1.17 django_elasticsearch_dsl_drf.filter_backends.ordering.common module

Ordering backend.

class django_elasticsearch_dsl_drf.filter_backends.ordering.common.**DefaultOrderingFilterBa**

Bases: rest_framework.filters.BaseFilterBackend, django_elasticsearch_dsl_drf.filter_backends.ordering.common.OrderingMixin

Default ordering filter backend for Elasticsearch.

Make sure this is your last ordering backend.

Example:

```
>>> from django_elasticsearch_dsl_drf.filter_backends import (
>>>     DefaultOrderingFilterBackend,
>>>     OrderingFilterBackend
>>> )
>>> from django_elasticsearch_dsl_drf.viewsets import (
>>>     BaseDocumentViewSet,
>>> )
>>>
>>> # Local article document definition
>>> from .documents import ArticleDocument
>>>
>>> # Local article document serializer
>>> from .serializers import ArticleDocumentSerializer
>>>
>>> class ArticleDocumentView(BaseDocumentViewSet):
>>>
>>>     document = ArticleDocument
>>>     serializer_class = ArticleDocumentSerializer
>>>     filter_backends = [
>>>         DefaultOrderingFilterBackend,
>>>         OrderingFilterBackend,
>>>     ]
>>>     ordering_fields = {
>>>         'id': None,
>>>         'title': 'title.raw',
>>>         'date_submitted': 'date_submitted',
>>>         'continent': {
>>>             'field': 'continent.name.raw',
>>>             'path': 'continent',
>>>         }
>>>         'country': {
>>>             'field': 'continent.country.name.raw',
>>>             'path': 'continent.country',
>>>         }
>>>         'city': {
>>>             'field': 'continent.country.city.name.raw',
>>>             'path': 'continent.country.city',
```

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```
>>>         }
>>>     }
>>>     ordering = 'city'
```

filter_queryset(*request*, *queryset*, *view*)

Filter the queryset.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.

Return type elasticsearch_dsl.search.Search

classmethod get_default_ordering_params(*view*)

Get the default ordering params for the view.

Parameters **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Ordering params to be used for ordering.

Return type list

get_ordering_query_params(*request*, *view*)

Get ordering query params.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Ordering params to be used for ordering.

Return type list

ordering_param = 'ordering'

class django_elasticsearch_dsl_drf.filter_backends.ordering.common.**OrderingFilterBackend**

Bases: rest_framework.filters.BaseFilterBackend, django_elasticsearch_dsl_drf.filter_backends.ordering.common.OrderingMixin

Ordering filter backend for Elasticsearch.

Example:

```
>>> from django_elasticsearch_dsl_drf.filter_backends import (
>>>     OrderingFilterBackend
>>> )
>>> from django_elasticsearch_dsl_drf.viewsets import (
>>>     BaseDocumentViewSet,
>>> )
>>>
>>> # Local article document definition
>>> from .documents import ArticleDocument
>>>
>>> # Local article document serializer
>>> from .serializers import ArticleDocumentSerializer
```

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```
>>>
>>> class ArticleDocumentView(BaseDocumentViewSet):
>>>
>>>     document = ArticleDocument
>>>     serializer_class = ArticleDocumentSerializer
>>>     filter_backends = [OrderingFilterBackend,]
>>>     ordering_fields = {
>>>         'id': None,
>>>         'title': 'title.raw',
>>>         'date_submitted': 'date_submitted',
>>>         'continent': {
>>>             'field': 'continent.name.raw',
>>>             'path': 'continent',
>>>         }
>>>         'country': {
>>>             'field': 'continent.country.name.raw',
>>>             'path': 'continent.country',
>>>         }
>>>         'city': {
>>>             'field': 'continent.country.city.name.raw',
>>>             'path': 'continent.country.city',
>>>         }
>>>     }
>>>     ordering = ('id', 'title',)
```

filter_queryset(*request*, *queryset*, *view*)

Filter the queryset.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.

Return type elasticsearch_dsl.search.Search

get_ordering_query_params(*request*, *view*)

Get ordering query params.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Ordering params to be used for ordering.

Return type list

get_schema_fields(*view*)

ordering_param = 'ordering'

12.19.1.2.1.18 django_elasticsearch_dsl_drf.filter_backends.ordering.geo_spatial module

Geo-spatial ordering backend.

class django_elasticsearch_dsl_drf.filter_backends.ordering.geo_spatial.**GeoSpatialOrderingF**

Bases: rest_framework.filters.BaseFilterBackend, *django_elasticsearch_dsl_drf.filter_backends.mixins.FilterBackendMixin*

Geo-spatial ordering filter backend for Elasticsearch.

Example:

```
>>> from django_elasticsearch_dsl_drf.filter_backends import (
>>>     GeoSpatialOrderingFilterBackend
>>> )
>>> from django_elasticsearch_dsl_drf.viewsets import (
>>>     BaseDocumentViewSet,
>>> )
>>>
>>> # Local article document definition
>>> from .documents import ArticleDocument
>>>
>>> # Local article document serializer
>>> from .serializers import ArticleDocumentSerializer
>>>
>>> class ArticleDocumentView(BaseDocumentViewSet):
>>>
>>>     document = ArticleDocument
>>>     serializer_class = ArticleDocumentSerializer
>>>     filter_backends = [GeoSpatialOrderingFilterBackend,]
>>>     geo_spatial_ordering_fields = {
>>>         'location': {
>>>             'field': 'location',
>>>         }
>>>     }
```

filter_queryset(*request*, *queryset*, *view*)

Filter the queryset.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.

Return type elasticsearch_dsl.search.Search

classmethod get_geo_distance_params(*value*, *field*)

Get params for *geo_distance* ordering.

Example:

/api/articles/?ordering=-location__45.3214__-34.3421__km__planes

Parameters

- **value** (*str*) –
- **field** –

Returns Params to be used in *geo_distance* query.

Return type dict

get_geo_spatial_field_name(*request*, *view*, *name*)

Get geo-spatial field name.

We have to deal with a couple of situations here:

Example 1:

```
>>> geo_spatial_ordering_fields = {
>>>     'location': None,
>>> }
```

Example 2:

```
>>> geo_spatial_ordering_fields = {
>>>     'location': 'location',
>>> }
```

Example 3:

```
>>> geo_spatial_ordering_fields = {
>>>     'location': {
>>>         'field': 'location'
>>>     },
>>> }
```

Parameters

- **request** –
- **view** –
- **name** –

Returns

get_ordering_query_params(*request*, *view*)

Get ordering query params.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Ordering params to be used for ordering.

Return type list

ordering_param = 'ordering'

12.19.1.2.1.19 Module contents

Ordering backends.

class django_elasticsearch_dsl_drf.filter_backends.ordering.**DefaultOrderingFilterBackend**

Bases: rest_framework.filters.BaseFilterBackend, django_elasticsearch_dsl_drf.filter_backends.ordering.common.OrderingMixin

Default ordering filter backend for Elasticsearch.

Make sure this is your last ordering backend.

Example:

```
>>> from django_elasticsearch_dsl_drf.filter_backends import (
>>>     DefaultOrderingFilterBackend,
>>>     OrderingFilterBackend
>>> )
>>> from django_elasticsearch_dsl_drf.viewsets import (
>>>     BaseDocumentViewSet,
>>> )
>>>
>>> # Local article document definition
>>> from .documents import ArticleDocument
>>>
>>> # Local article document serializer
>>> from .serializers import ArticleDocumentSerializer
>>>
>>> class ArticleDocumentView(BaseDocumentViewSet):
>>>
>>>     document = ArticleDocument
>>>     serializer_class = ArticleDocumentSerializer
>>>     filter_backends = [
>>>         DefaultOrderingFilterBackend,
>>>         OrderingFilterBackend,
>>>     ]
>>>     ordering_fields = {
>>>         'id': None,
>>>         'title': 'title.raw',
>>>         'date_submitted': 'date_submitted',
>>>         'continent': {
>>>             'field': 'continent.name.raw',
>>>             'path': 'continent',
>>>         }
>>>         'country': {
>>>             'field': 'continent.country.name.raw',
>>>             'path': 'continent.country',
>>>         }
>>>         'city': {
>>>             'field': 'continent.country.city.name.raw',
>>>             'path': 'continent.country.city',
>>>         }
>>>     }
>>>     ordering = 'city'
```

filter_queryset(*request*, *queryset*, *view*)

Filter the queryset.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.

Return type elasticsearch_dsl.search.Search

classmethod get_default_ordering_params(*view*)

Get the default ordering params for the view.

Parameters **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Ordering params to be used for ordering.
Return type list

get_ordering_query_params(*request*, *view*)
Get ordering query params.
Parameters
- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Ordering params to be used for ordering.
Return type list

ordering_param = 'ordering'

class django_elasticsearch_dsl_drf.filter_backends.ordering.**GeoSpatialOrderingFilterBacken**
Bases: rest_framework.filters.BaseFilterBackend, *django_elasticsearch_dsl_drf.filter_backends.mixins.FilterBackendMixin*

Geo-spatial ordering filter backend for Elasticsearch.

Example:

```
>>> from django_elasticsearch_dsl_drf.filter_backends import (
>>>     GeoSpatialOrderingFilterBackend
>>> )
>>> from django_elasticsearch_dsl_drf.viewsets import (
>>>     BaseDocumentViewSet,
>>> )
>>>
>>> # Local article document definition
>>> from .documents import ArticleDocument
>>>
>>> # Local article document serializer
>>> from .serializers import ArticleDocumentSerializer
>>>
>>> class ArticleDocumentView(BaseDocumentViewSet):
>>>
>>>     document = ArticleDocument
>>>     serializer_class = ArticleDocumentSerializer
>>>     filter_backends = [GeoSpatialOrderingFilterBackend,]
>>>     geo_spatial_ordering_fields = {
>>>         'location': {
>>>             'field': 'location',
>>>         }
>>>     }
```

filter_queryset(*request*, *queryset*, *view*)
Filter the queryset.
Parameters
- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.

Return type elasticsearch_dsl.search.Search

classmethod get_geo_distance_params(*value*, *field*)
Get params for *geo_distance* ordering.

Example:
/api/articles/?ordering=-location__45.3214__-34.3421__km__planes

Parameters

- **value** (*str*) –
- **field** –

Returns Params to be used in *geo_distance* query.
Return type dict

get_geo_spatial_field_name(*request*, *view*, *name*)
Get geo-spatial field name.

We have to deal with a couple of situations here:

Example 1:

```
>>> geo_spatial_ordering_fields = {
>>>     'location': None,
>>> }
```

Example 2:

```
>>> geo_spatial_ordering_fields = {
>>>     'location': 'location',
>>> }
```

Example 3:

```
>>> geo_spatial_ordering_fields = {
>>>     'location': {
>>>         'field': 'location'
>>>     },
>>> }
```

Parameters

- **request** –
- **view** –
- **name** –

Returns

get_ordering_query_params(*request*, *view*)
Get ordering query params.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Ordering params to be used for ordering.
Return type list

ordering_param = 'ordering'

class django_elasticsearch_dsl_drf.filter_backends.ordering.**OrderingFilterBackend**

Bases: rest_framework.filters.BaseFilterBackend, django_elasticsearch_dsl_drf.filter_backends.ordering.common.OrderingMixin

Ordering filter backend for Elasticsearch.

Example:

```
>>> from django_elasticsearch_dsl_drf.filter_backends import (
>>>     OrderingFilterBackend
>>> )
>>> from django_elasticsearch_dsl_drf.viewsets import (
>>>     BaseDocumentViewSet,
>>> )
>>>
>>> # Local article document definition
>>> from .documents import ArticleDocument
>>>
>>> # Local article document serializer
>>> from .serializers import ArticleDocumentSerializer
>>>
>>> class ArticleDocumentView(BaseDocumentViewSet):
>>>
>>>     document = ArticleDocument
>>>     serializer_class = ArticleDocumentSerializer
>>>     filter_backends = [OrderingFilterBackend,]
>>>     ordering_fields = {
>>>         'id': None,
>>>         'title': 'title.raw',
>>>         'date_submitted': 'date_submitted',
>>>         'continent': {
>>>             'field': 'continent.name.raw',
>>>             'path': 'continent',
>>>         }
>>>         'country': {
>>>             'field': 'continent.country.name.raw',
>>>             'path': 'continent.country',
>>>         }
>>>         'city': {
>>>             'field': 'continent.country.city.name.raw',
>>>             'path': 'continent.country.city',
>>>         }
>>>     }
>>>     ordering = ('id', 'title',)
```

filter_queryset(*request*, *queryset*, *view*)

Filter the queryset.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.

Return type elasticsearch_dsl.search.Search

get_ordering_query_params(*request*, *view*)

Get ordering query params.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Ordering params to be used for ordering.

Return type list

get_schema_fields(*view*)

ordering_param = 'ordering'

12.19.1.2.1.20 django_elasticsearch_dsl_drf.filter_backends.search package

12.19.1.2.1.21 Subpackages

12.19.1.2.1.22 django_elasticsearch_dsl_drf.filter_backends.search.query_backends package

12.19.1.2.1.23 Submodules

12.19.1.2.1.24 django_elasticsearch_dsl_drf.filter_backends.search.query_backends.base module

class django_elasticsearch_dsl_drf.filter_backends.search.query_backends.base.**BaseSearchQue**

Bases: object

Search query backend.

classmethod construct_search(*request*, *view*, *search_backend*)

Construct search.

Parameters

- **request** –
- **view** –
- **search_backend** –

Returns

12.19.1.2.1.25 django_elasticsearch_dsl_drf.filter_backends.search.query_backends.match module

class django_elasticsearch_dsl_drf.filter_backends.search.query_backends.match.**MatchQueryBa**

Bases: *django_elasticsearch_dsl_drf.filter_backends.search.query_backends.base.BaseSearchQueryBackend*

Match query backend.

classmethod construct_search(*request*, *view*, *search_backend*)

Construct search.

Parameters

- **request** –
- **view** –

- **search_backend** –

Returns

query_type = 'match'

12.19.1.2.1.26 django_elasticsearch_dsl_drf.filter_backends.search.query_backends.match_phrase module

class django_elasticsearch_dsl_drf.filter_backends.search.query_backends.match_phrase.**Match**

Bases: *django_elasticsearch_dsl_drf.filter_backends.search.query_backends.base.BaseSearchQueryBackend*

Match phrase query backend.

classmethod construct_search(*request*, *view*, *search_backend*)

Construct search.

Parameters

- **request** –
- **view** –
- **search_backend** –

Returns

query_type = 'match_phrase'

12.19.1.2.1.27 django_elasticsearch_dsl_drf.filter_backends.search.query_backends.match_phrase_prefix module

class django_elasticsearch_dsl_drf.filter_backends.search.query_backends.match_phrase_prefi

Bases: *django_elasticsearch_dsl_drf.filter_backends.search.query_backends.base.BaseSearchQueryBackend*

Match phrase prefix query backend.

classmethod construct_search(*request*, *view*, *search_backend*)

Construct search.

Parameters

- **request** –
- **view** –
- **search_backend** –

Returns

query_type = 'match_phrase_prefix'

12.19.1.2.1.28 django_elasticsearch_dsl_drf.filter_backends.search.query_backends.multi_match module

class django_elasticsearch_dsl_drf.filter_backends.search.query_backends.multi_match.**MultiM**

Bases: *django_elasticsearch_dsl_drf.filter_backends.search.query_backends.base.BaseSearchQueryBackend*

Multi match query backend.

classmethod construct_search(*request*, *view*, *search_backend*)
Construct search.

In case of multi match, we always look in a group of fields. Thus, matching per field is no longer valid use case here. However, we might want to have multiple fields enabled for multi match per view set, and only search in some of them in specific request.

Example:
/search/books/?search_multi_match=lorem ipsum /search/books/?search_multi_match=title,summary:lorem ipsum
Note, that multiple searches are not supported (would not raise an exception, but would simply take only the first):
/search/books/?search_multi_match=title,summary:lorem ipsum
&search_multi_match=author,publisher=o'reily
In the view-set fields shall be defined in a very simple way. The only accepted argument would be boost (per field).

Example 1 (complex):
multi_match_search_fields = { 'title': {'field': 'title.english', 'boost': 4}, 'summary': {'boost': 2}, 'description': None,

}
Example 2 (simple list):
multi_match_search_fields = ('title', 'summary', 'description',

)

Parameters

- **request** –
- **view** –
- **search_backend** –

Returns

classmethod get_field(*field*, *options*)
Get field.
Parameters

- **field** –
- **options** –

Returns

classmethod get_query_options(*request*, *view*, *search_backend*)

query_type = 'multi_match'

12.19.1.2.1.29 django_elasticsearch_dsl_drf.filter_backends.search.query_backends.nested module

class django_elasticsearch_dsl_drf.filter_backends.search.query_backends.nested.**NestedQuery**
Bases: *django_elasticsearch_dsl_drf.filter_backends.search.query_backends.base.BaseSearchQueryBackend*

Nested query backend.

classmethod construct_search(*request*, *view*, *search_backend*)
Construct search.

Dictionary key is the GET param name. The path option stands for the path in Elasticsearch.

Type 1:

search_nested_fields = {

'country': { 'path': 'country', 'fields': ['name'],

}, 'city': {

'path': 'country.city', 'fields': ['name'],

},

}

Type 2:

search_nested_fields = {

'country': { 'path': 'country', 'fields': [{'name': {'boost': 2}}]

}, 'city': {

'path': 'country.city', 'fields': [{'name': {'boost': 2}}]

},

}

Parameters

- **request** –
- **view** –
- **search_backend** –

Returns

query_type = 'nested'

12.19.1.2.1.30 django_elasticsearch_dsl_drf.filter_backends.search.query_backends.simple_query_string module

class django_elasticsearch_dsl_drf.filter_backends.search.query_backends.simple_query_strin

Bases: *django_elasticsearch_dsl_drf.filter_backends.search.query_backends.base.BaseSearchQueryBackend*

Simple query string query backend.

classmethod construct_search(*request*, *view*, *search_backend*)

Construct search.

In case of multi match, we always look in a group of fields. Thus, matching per field is no longer valid use case here. However, we might want to have multiple fields enabled for multi match per view set, and only search in some of them in specific request.

Example:

/search/books/?search_simple_query_string= "fried eggs" %2B(eggplant | potato) -frittata

/search/books/?search_simple_query_string= title,summary:"fried eggs" +(eggplant | potato) -frittata

Note, that multiple searches are not supported (would not raise an exception, but would simply take only the first):

/search/books/?search_simple_query_string= title,summary:"fried eggs" +(eggplant | potato) -frittata &search_simple_query_string= author,publisher="fried eggs" +(eggplant | potato) -frittata

In the view-set fields shall be defined in a very simple way. The only accepted argument would be boost (per field).

Example 1 (complex):

simple_query_string_search_fields = { 'title': {'field': 'title.english', 'boost': 4}, 'summary': {'boost': 2}, 'description': None,

}

Example 2 (simple list):

simple_query_string_search_fields = ('title', 'summary', 'description',

)

Query examples:

http://localhost:8000/search /books-simple-query-string-search-backend /?search_simple_query_string=%22Pool%20of%20Tears%22

http://localhost:8000/search /books-simple-query-string-search-backend /?search_simple_query_string=%22Pool%20of%20Tears%22 -considering

Parameters

- **request** –
- **view** –
- **search_backend** –

Returns

classmethod get_field(*field*, *options*)

Get field.

Parameters

- **field** –
- **options** –

Returns

classmethod get_query_options(*request*, *view*, *search_backend*)

query_type = 'simple_query_string'

12.19.1.2.1.31 Module contents

Search query backends.

class django_elasticsearch_dsl_drf.filter_backends.search.query_backends.**BaseSearchQueryBa**

Bases: object

Search query backend.

classmethod construct_search(*request*, *view*, *search_backend*)

Construct search.

Parameters

- **request** –
- **view** –
- **search_backend** –

Returns

class django_elasticsearch_dsl_drf.filter_backends.search.query_backends.**MatchQueryBackend**
Bases: *django_elasticsearch_dsl_drf.filter_backends.search.query_backends.base.BaseSearchQueryBackend*

Match query backend.

classmethod construct_search(*request*, *view*, *search_backend*)
Construct search.
Parameters
- **request** –
- **view** –
- **search_backend** –

Returns

query_type = 'match'

class django_elasticsearch_dsl_drf.filter_backends.search.query_backends.**MatchPhraseQueryBa**
Bases: *django_elasticsearch_dsl_drf.filter_backends.search.query_backends.base.BaseSearchQueryBackend*

Match phrase query backend.

classmethod construct_search(*request*, *view*, *search_backend*)
Construct search.
Parameters
- **request** –
- **view** –
- **search_backend** –

Returns

query_type = 'match_phrase'

class django_elasticsearch_dsl_drf.filter_backends.search.query_backends.**MatchPhrasePrefix(**
Bases: *django_elasticsearch_dsl_drf.filter_backends.search.query_backends.base.BaseSearchQueryBackend*

Match phrase prefix query backend.

classmethod construct_search(*request*, *view*, *search_backend*)
Construct search.
Parameters
- **request** –
- **view** –
- **search_backend** –

Returns

query_type = 'match_phrase_prefix'

class django_elasticsearch_dsl_drf.filter_backends.search.query_backends.**MultiMatchQueryBac**
Bases: *django_elasticsearch_dsl_drf.filter_backends.search.query_backends.base.BaseSearchQueryBackend*

Multi match query backend.

classmethod construct_search(*request*, *view*, *search_backend*)
Construct search.

In case of multi match, we always look in a group of fields. Thus, matching per field is no longer valid use case here. However, we might want to have multiple fields enabled for multi match per view set, and only search in some of them in specific request.

Example:

/search/books/?search_multi_match=lorem ipsum /search/books/?search_multi_match=title,summary:lorem ipsum

Note, that multiple searches are not supported (would not raise an exception, but would simply take only the first):

/search/books/?search_multi_match=title,summary:lorem ipsum
&search_multi_match=author,publisher=o'reily

In the view-set fields shall be defined in a very simple way. The only accepted argument would be boost (per field).

Example 1 (complex):

multi_match_search_fields = { 'title': {'field': 'title.english', 'boost': 4}, 'summary': {'boost': 2}, 'description': None,

}

Example 2 (simple list):

multi_match_search_fields = ('title', 'summary', 'description',

)

Parameters

- **request** –
- **view** –
- **search_backend** –

Returns

classmethod get_field(*field*, *options*)

Get field.

Parameters

- **field** –
- **options** –

Returns

classmethod get_query_options(*request*, *view*, *search_backend*)

query_type = 'multi_match'

class django_elasticsearch_dsl_drf.filter_backends.search.query_backends.**NestedQueryBacken**

Bases: *django_elasticsearch_dsl_drf.filter_backends.search.query_backends.base.BaseSearchQueryBackend*

Nested query backend.

classmethod construct_search(*request*, *view*, *search_backend*)

Construct search.

Dictionary key is the GET param name. The path option stands for the path in Elasticsearch.

Type 1:

search_nested_fields = {

'country': { 'path': 'country', 'fields': ['name'],

}, 'city': {

'path': 'country.city', 'fields': ['name'],

},

}

Type 2:

search_nested_fields = {

'country': { 'path': 'country', 'fields': [{'name': {'boost': 2}}]

}, 'city': {

'path': 'country.city', 'fields': [{'name': {'boost': 2}}]

},

}

Parameters

- **request** –
- **view** –
- **search_backend** –

Returns

query_type = 'nested'

class django_elasticsearch_dsl_drf.filter_backends.search.query_backends.**SimpleQueryString**

Bases: *django_elasticsearch_dsl_drf.filter_backends.search.query_backends.base.BaseSearchQueryBackend*

Simple query string query backend.

classmethod construct_search(*request*, *view*, *search_backend*)

Construct search.

In case of multi match, we always look in a group of fields. Thus, matching per field is no longer valid use case here. However, we might want to have multiple fields enabled for multi match per view set, and only search in some of them in specific request.

Example:

/search/books/?search_simple_query_string= "fried eggs" %2B(eggplant | potato) -frittata

/search/books/?search_simple_query_string= title,summary:"fried eggs" +(eggplant | potato) -frittata

Note, that multiple searches are not supported (would not raise an exception, but would simply take only the first):

/search/books/?search_simple_query_string= title,summary:"fried eggs" +(eggplant | potato) -frittata &search_simple_query_string= author,publisher="fried eggs" +(eggplant | potato) -frittata

In the view-set fields shall be defined in a very simple way. The only accepted argument would be boost (per field).

Example 1 (complex):

simple_query_string_search_fields = { 'title': {'field': 'title.english', 'boost': 4}, 'summary': {'boost': 2}, 'description': None,

}

Example 2 (simple list):

simple_query_string_search_fields = ('title', 'summary', 'description',

)

Query examples:
http://localhost:8000/search /books-simple-query-string-search-backend
/?search_simple_query_string=%22Pool%20of%20Tears%22
http://localhost:8000/search /books-simple-query-string-search-backend
/?search_simple_query_string=%22Pool%20of%20Tears%22 -considering

Parameters

- **request** –
- **view** –
- **search_backend** –

Returns

classmethod get_field(*field*, *options*)
Get field.

Parameters

- **field** –
- **options** –

Returns

classmethod get_query_options(*request*, *view*, *search_backend*)

query_type = 'simple_query_string'

12.19.1.2.1.32 Submodules

12.19.1.2.1.33 django_elasticsearch_dsl_drf.filter_backends.search.base module

Base search backend.

class django_elasticsearch_dsl_drf.filter_backends.search.base.**BaseSearchFilterBackend**
Bases: rest_framework.filters.BaseFilterBackend, *django_elasticsearch_dsl_drf.filter_backends.mixins.FilterBackendMixin*

Base search filter backend.

filter_queryset(*request*, *queryset*, *view*)
Filter the queryset.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.
Return type elasticsearch_dsl.search.Search

get_coreschema_field(*field*)

get_query_backends(*request*, *view*)
Get query backends.

Returns

get_schema_fields(*view*)

get_search_query_params(*request*)
Get search query params.
Parameters **request** (*rest_framework.request.Request*) – Django REST framework request.
Returns List of search query params.
Return type list

matching = 'should'

query_backends = []

search_param = 'search'

12.19.1.2.1.34 django_elasticsearch_dsl_drf.filter_backends.search.compound module

Compound search backend.

class django_elasticsearch_dsl_drf.filter_backends.search.compound.**CompoundSearchFilterBack**
Bases: *django_elasticsearch_dsl_drf.filter_backends.search.base.BaseSearchFilterBackend*

Compound search backend.

query_backends = [<class 'django_elasticsearch_dsl_drf.filter_backends.search.query_ba

12.19.1.2.1.35 django_elasticsearch_dsl_drf.filter_backends.search.historical module

Search backend. Most likely to be deprecated soon.

class django_elasticsearch_dsl_drf.filter_backends.search.historical.**SearchFilterBackend**
Bases: rest_framework.filters.BaseFilterBackend, *django_elasticsearch_dsl_drf.filter_backends.mixins.FilterBackendMixin*

Search filter backend for Elasticsearch.

Example:

```
>>> from django_elasticsearch_dsl_drf.filter_backends import (
>>>     SearchFilterBackend
>>> )
>>> from django_elasticsearch_dsl_drf.viewsets import (
>>>     BaseDocumentViewSet,
>>> )
>>>
>>> # Local article document definition
>>> from .documents import ArticleDocument
>>>
>>> # Local article document serializer
>>> from .serializers import ArticleDocumentSerializer
>>>
>>> class ArticleDocumentView(BaseDocumentViewSet):
>>>
>>>     document = ArticleDocument
>>>     serializer_class = ArticleDocumentSerializer
>>>     filter_backends = [SearchFilterBackend,]
>>>     search_fields = (
>>>         'title',
>>>         'content',
```

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```
>>>     )
>>>     search_nested_fields = {
>>>         'state': ['name'],
>>>         'documents.author': ['title', 'description'],
>>>     }
```

construct_nested_search (*request*, *view*)

Construct nested search.

We have to deal with two types of structures:

Type 1:

```
>>> search_nested_fields = {
>>>     'country': {
>>>         'path': 'country',
>>>         'fields': ['name'],
>>>     },
>>>     'city': {
>>>         'path': 'country.city',
>>>         'fields': ['name'],
>>>     },
>>> }
```

Type 2:

```
>>> search_nested_fields = {
>>>     'country': {
>>>         'path': 'country',
>>>         'fields': [{'name': {'boost': 2}}]
>>>     },
>>>     'city': {
>>>         'path': 'country.city',
>>>         'fields': [{'name': {'boost': 2}}]
>>>     },
>>> }
```

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.

Return type elasticsearch_dsl.search.Search

construct_search (*request*, *view*)

Construct search.

We have to deal with two types of structures:

Type 1:

```
>>> search_fields = (
>>>     'title',
>>>     'description',
```

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```
>>>     'summary',
>>> )
```

Type 2:

```
>>> search_fields = {
>>>     'title': {'boost': 2},
>>>     'description': None,
>>>     'summary': None,
>>> }
```

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.

Return type elasticsearch_dsl.search.Search

filter_queryset(*request*, *queryset*, *view*)

Filter the queryset.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.

Return type elasticsearch_dsl.search.Search

get_coreschema_field(*field*)

get_schema_fields(*view*)

get_search_query_params(*request*)

Get search query params.

Parameters **request** (*rest_framework.request.Request*) – Django REST framework request.

Returns List of search query params.

Return type list

search_param = 'search'

12.19.1.2.1.36 django_elasticsearch_dsl_drf.filter_backends.search.multi_match module

Multi match search filter backend.

class django_elasticsearch_dsl_drf.filter_backends.search.multi_match.**MultiMatchSearchFilte**

Bases: *django_elasticsearch_dsl_drf.filter_backends.search.base.BaseSearchFilterBackend*

Multi match search filter backend.

matching = 'must'

query_backends = [<class 'django_elasticsearch_dsl_drf.filter_backends.search.query_ba

search_param = 'search_multi_match'

12.19.1.2.1.37 django_elasticsearch_dsl_drf.filter_backends.search.query_string module

12.19.1.2.1.38 django_elasticsearch_dsl_drf.filter_backends.search.simple_query_string module

Simple query string search filter backend.

class django_elasticsearch_dsl_drf.filter_backends.search.simple_query_string.**SimpleQuerySt**
Bases: *django_elasticsearch_dsl_drf.filter_backends.search.base.BaseSearchFilterBackend*

Simple query string search filter backend.

matching = 'must'

query_backends = [<class 'django_elasticsearch_dsl_drf.filter_backends.search.query_ba

search_param = 'search_simple_query_string'

12.19.1.2.1.39 Module contents

Search filter backends.

class django_elasticsearch_dsl_drf.filter_backends.search.**BaseSearchFilterBackend**
Bases: rest_framework.filters.BaseFilterBackend, *django_elasticsearch_dsl_drf.filter_backends.mixins.FilterBackendMixin*

Base search filter backend.

filter_queryset(*request*, *queryset*, *view*)
Filter the queryset.
Parameters
- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.
Return type elasticsearch_dsl.search.Search

get_coreschema_field(*field*)

get_query_backends(*request*, *view*)
Get query backends.
Returns

get_schema_fields(*view*)

get_search_query_params(*request*)
Get search query params.
Parameters **request** (*rest_framework.request.Request*) – Django REST framework request.

Returns List of search query params.
Return type list

matching = 'should'

query_backends = []

search_param = 'search'

class django_elasticsearch_dsl_drf.filter_backends.search.**CompoundSearchFilterBackend**
Bases: *django_elasticsearch_dsl_drf.filter_backends.search.base.BaseSearchFilterBackend*

Compound search backend.

query_backends = [<class 'django_elasticsearch_dsl_drf.filter_backends.search.query_ba

class django_elasticsearch_dsl_drf.filter_backends.search.**MultiMatchSearchFilterBackend**
Bases: *django_elasticsearch_dsl_drf.filter_backends.search.base.BaseSearchFilterBackend*

Multi match search filter backend.

matching = 'must'

query_backends = [<class 'django_elasticsearch_dsl_drf.filter_backends.search.query_ba

search_param = 'search_multi_match'

class django_elasticsearch_dsl_drf.filter_backends.search.**SearchFilterBackend**
Bases: rest_framework.filters.BaseFilterBackend, *django_elasticsearch_dsl_drf.filter_backends.mixins.FilterBackendMixin*

Search filter backend for Elasticsearch.

Example:

```
>>> from django_elasticsearch_dsl_drf.filter_backends import (
>>>     SearchFilterBackend
>>> )
>>> from django_elasticsearch_dsl_drf.viewsets import (
>>>     BaseDocumentViewSet,
>>> )
>>>
>>> # Local article document definition
>>> from .documents import ArticleDocument
>>>
>>> # Local article document serializer
>>> from .serializers import ArticleDocumentSerializer
>>>
>>> class ArticleDocumentView(BaseDocumentViewSet):
>>>
>>>     document = ArticleDocument
>>>     serializer_class = ArticleDocumentSerializer
>>>     filter_backends = [SearchFilterBackend,]
>>>     search_fields = (
>>>         'title',
>>>         'content',
>>>     )
>>>     search_nested_fields = {
>>>         'state': ['name'],
>>>         'documents.author': ['title', 'description'],
>>>     }
```

construct_nested_search (*request*, *view*)
Construct nested search.

We have to deal with two types of structures:

Type 1:

```
>>> search_nested_fields = {
>>>     'country': {
>>>         'path': 'country',
>>>         'fields': ['name'],
>>>     },
>>>     'city': {
>>>         'path': 'country.city',
>>>         'fields': ['name'],
>>>     },
>>> }
```

Type 2:

```
>>> search_nested_fields = {
>>>     'country': {
>>>         'path': 'country',
>>>         'fields': [{'name': {'boost': 2}}]
>>>     },
>>>     'city': {
>>>         'path': 'country.city',
>>>         'fields': [{'name': {'boost': 2}}]
>>>     },
>>> }
```

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.
Return type elasticsearch_dsl.search.Search

construct_search (*request*, *view*)
Construct search.

We have to deal with two types of structures:

Type 1:

```
>>> search_fields = (
>>>     'title',
>>>     'description',
>>>     'summary',
>>> )
```

Type 2:

```
>>> search_fields = {
>>>     'title': {'boost': 2},
```

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```
>>>     'description': None,
>>>     'summary': None,
>>> }
```

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.

Return type elasticsearch_dsl.search.Search

filter_queryset(*request*, *queryset*, *view*)

Filter the queryset.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.

Return type elasticsearch_dsl.search.Search

get_coreschema_field(*field*)

get_schema_fields(*view*)

get_search_query_params(*request*)

Get search query params.

Parameters **request** (*rest_framework.request.Request*) – Django REST framework request.

Returns List of search query params.

Return type list

search_param = 'search'

class django_elasticsearch_dsl_drf.filter_backends.search.**SimpleQueryStringSearchFilterBack**

Bases: *django_elasticsearch_dsl_drf.filter_backends.search.base.BaseSearchFilterBackend*

Simple query string search filter backend.

matching = 'must'

query_backends = [<class 'django_elasticsearch_dsl_drf.filter_backends.search.query_ba

search_param = 'search_simple_query_string'

12.19.1.2.1.40 django_elasticsearch_dsl_drf.filter_backends.suggester package

12.19.1.2.1.41 Submodules

12.19.1.2.1.42 django_elasticsearch_dsl_drf.filter_backends.suggester.functional module

Functional suggesters backend.

It's assumed, that fields you're planning to query suggestions for have been properly indexed using `fields.CompletionField`.

Example:

```
>>> from django_elasticsearch_dsl import Document, Index, fields
>>>
>>> from books.models import Publisher
>>>
>>> # Name of the Elasticsearch index
>>> PUBLISHER_INDEX = Index(PUBLISHER_INDEX_NAME)
>>> # See Elasticsearch Indices API reference for available settings
>>> PUBLISHER_INDEX.settings(
>>>     number_of_shards=1,
>>>     number_of_replicas=1
>>> )
>>>
>>> @PUBLISHER_INDEX.doc_type
>>> class PublisherDocument(Document):
>>>     "Publisher Elasticsearch document."
>>>
>>>     id = fields.IntegerField(attr='id')
>>>
>>>     name = fields.StringField(
>>>         fields={
>>>             'raw': fields.StringField(analyzer='keyword'),
>>>             'suggest': fields.CompletionField(),
>>>         }
>>>     )
>>>
>>>     info = fields.StringField()
>>>
>>>     address = fields.StringField(
>>>         fields={
>>>             'raw': fields.StringField(analyzer='keyword')
>>>         }
>>>     )
>>>
>>>     city = fields.StringField(
>>>         fields={
>>>             'raw': fields.StringField(analyzer='keyword'),
>>>             'suggest': fields.CompletionField(),
>>>         }
>>>     )
>>>
>>>     state_province = fields.StringField(
>>>         fields={
>>>             'raw': fields.StringField(analyzer='keyword'),
>>>             'suggest': fields.CompletionField(),
```

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```
>>>         }
>>>     )
>>>
>>>     country = fields.StringField(
>>>         fields={
>>>             'raw': fields.StringField(analyzer='keyword'),
>>>             'suggest': fields.CompletionField(),
>>>         }
>>>     )
>>>
>>>     website = fields.StringField()
>>>
>>>     class Meta:
>>>         "Meta options."
>>>
>>>         model = Publisher  # The model associate with this Document
```

class django_elasticsearch_dsl_drf.filter_backends.suggester.functional.**FunctionalSuggester**

Bases: rest_framework.filters.BaseFilterBackend, *django_elasticsearch_dsl_drf.filter_backends.mixins.FilterBackendMixin*

Suggester filter backend for Elasticsearch.

Suggestion functionality is exclusive. Once you have queried the FunctionalSuggesterFilterBackend, the latter will transform your current search query into another search query (altered). Therefore, always add it as the very last filter backend.

Example:

```
>>> from django_elasticsearch_dsl_drf.constants import (
>>>     FUNCTIONAL_SUGGESTER_COMPLETION_MATCH,
>>>     FUNCTIONAL_SUGGESTER_COMPLETION_PREFIX,
>>>     FUNCTIONAL_SUGGESTER_PHRASE_MATCH,
>>>     FUNCTIONAL_SUGGESTER_PHRASE_MATCH,
>>>     FUNCTIONAL_SUGGESTER_TERM_MATCH,
>>> )
>>> from django_elasticsearch_dsl_drf.filter_backends import (
>>>     FunctionalSuggesterFilterBackend
>>> )
>>> from django_elasticsearch_dsl_drf.viewsets import DocumentViewSet
>>>
>>> # Local PublisherDocument definition
>>> from .documents import PublisherDocument
>>>
>>> # Local PublisherDocument serializer
>>> from .serializers import PublisherDocumentSerializer
>>>
>>> class PublisherDocumentView(DocumentViewSet):
>>>
>>>     document = PublisherDocument
>>>     serializer_class = PublisherDocumentSerializer
>>>     filter_backends = [
>>>         # ...
>>>         FunctionalSuggesterFilterBackend,
>>>     ]
>>>     # Suggester fields
>>>     functional_suggester_fields = {
```

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```
>>>         'name_suggest': {
>>>             'field': 'name.suggest',
>>>             'suggesters': [
>>>                 FUNCTIONAL_SUGGESTER_COMPLETION_MATCH,
>>>                 FUNCTIONAL_SUGGESTER_COMPLETION_PREFIX,
>>>             ],
>>>         },
>>>         'city_suggest': {
>>>             'field': 'city.suggest',
>>>             'suggesters': [
>>>                 FUNCTIONAL_SUGGESTER_COMPLETION_PREFIX,
>>>             ],
>>>         },
>>>         'state_province_suggest': {
>>>             'field': 'state_province.suggest',
>>>             'suggesters': [
>>>                 FUNCTIONAL_SUGGESTER_COMPLETION_MATCH,
>>>             ],
>>>         },
>>>         'country_suggest': {
>>>             'field': 'country.suggest',
>>>             'suggesters': [
>>>                 FUNCTIONAL_SUGGESTER_COMPLETION_PREFIX,
>>>             ],
>>>         },
>>>     }
```

classmethod apply_query_size(*queryset*, *options*)

Apply query size.

Parameters

- **queryset** –
- **options** –

Returns

classmethod apply_suggester_completion_match(*suggester_name*, *queryset*, *options*, *value*)

Apply *completion* suggester match.

This is effective when used with Ngram fields.

Parameters

- **suggester_name** (*str*) –
- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_suggester_completion_prefix(*suggester_name*, *queryset*, *options*, *value*)

Apply *completion* suggester prefix.

This is effective when used with Keyword fields.

Parameters

- **suggester_name** (*str*) –
- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.
Return type elasticsearch_dsl.search.Search

clean_queryset (*queryset*)
Clean the queryset.
- Remove aggregations.
- Remove highlight.
- Remove sorting options.

Parameters **queryset** –
Returns

extract_field_name (*field_name*)
Extract field name.

For instance, "name.suggest" or "name.raw" becomes "name".
Parameters **field_name** –
Returns
Return type str

filter_queryset (*request*, *queryset*, *view*)
Filter the queryset.
Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.
Return type elasticsearch_dsl.search.Search

get_suggester_query_params (*request*, *view*)
Get query params to be for suggestions.
Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Request query params to filter on.
Return type dict

classmethod prepare_suggester_fields (*view*)
Prepare filter fields.
Parameters **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) –
Returns Filtering options.
Return type dict

serialize_queryset (*queryset*, *suggester_name*, *value*, *serializer_field*)
Serialize queryset.

This shall be done here, since we don't want to delegate it to pagination.

Parameters

- **queryset** –
- **suggester_name** –
- **value** –
- **serializer_field** –

Returns

12.19.1.2.1.43 django_elasticsearch_dsl_drf.filter_backends.suggester.native module

Suggesters backend.

It's assumed, that fields you're planning to query suggestions for have been properly indexed using `fields.CompletionField`.

Example:

```
>>> from django_elasticsearch_dsl import Document, Index, fields
>>>
>>> from books.models import Publisher
>>>
>>> # Name of the Elasticsearch index
>>> PUBLISHER_INDEX = Index(PUBLISHER_INDEX_NAME)
>>> # See Elasticsearch Indices API reference for available settings
>>> PUBLISHER_INDEX.settings(
>>>     number_of_shards=1,
>>>     number_of_replicas=1
>>> )
>>>
>>> @PUBLISHER_INDEX.doc_type
>>> class PublisherDocument(Document):
>>>     "Publisher Elasticsearch document."
>>>
>>>     id = fields.IntegerField(attr='id')
>>>
>>>     name = fields.StringField(
>>>         fields={
>>>             'raw': fields.StringField(analyzer='keyword'),
>>>             'suggest': fields.CompletionField(),
>>>         }
>>>     )
>>>
>>>     info = fields.StringField()
>>>
>>>     address = fields.StringField(
>>>         fields={
>>>             'raw': fields.StringField(analyzer='keyword')
>>>         }
>>>     )
>>>
>>>     city = fields.StringField(
>>>         fields={
>>>             'raw': fields.StringField(analyzer='keyword'),
>>>             'suggest': fields.CompletionField(),
```

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```
>>>         }
>>>     )
>>>
>>>     state_province = fields.StringField(
>>>         fields={
>>>             'raw': fields.StringField(analyzer='keyword'),
>>>             'suggest': fields.CompletionField(),
>>>         }
>>>     )
>>>
>>>     country = fields.StringField(
>>>         fields={
>>>             'raw': fields.StringField(analyzer='keyword'),
>>>             'suggest': fields.CompletionField(),
>>>         }
>>>     )
>>>
>>>     website = fields.StringField()
>>>
>>>     class Meta:
>>>         "Meta options."
>>>
>>>         model = Publisher  # The model associate with this Document
```

class django_elasticsearch_dsl_drf.filter_backends.suggester.native.**SuggesterFilterBackend**

Bases: rest_framework.filters.BaseFilterBackend, *django_elasticsearch_dsl_drf.filter_backends.mixins.FilterBackendMixin*

Suggester filter backend for Elasticsearch.

Suggestion functionality is exclusive. Once you have queried the SuggesterFilterBackend, the latter will transform your current search query into suggestion search query (which is very different). Therefore, always add it as the very last filter backend.

Example:

```
>>> from django_elasticsearch_dsl_drf.constants import (
>>>     SUGGESTER_TERM,
>>>     SUGGESTER_PHRASE,
>>>     SUGGESTER_COMPLETION,
>>> )
>>> from django_elasticsearch_dsl_drf.filter_backends import (
>>>     SuggesterFilterBackend
>>> )
>>> from django_elasticsearch_dsl_drf.viewsets import DocumentViewSet
>>>
>>> # Local PublisherDocument definition
>>> from .documents import PublisherDocument
>>>
>>> # Local PublisherDocument serializer
>>> from .serializers import PublisherDocumentSerializer
>>>
>>> class PublisherDocumentView(BaseDocumentViewSet):
>>>
>>>     document = PublisherDocument
>>>     serializer_class = PublisherDocumentSerializer
>>>     filter_backends = [
```

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```
>>>         # ...
>>>         SuggesterFilterBackend,
>>>     ]
>>>     # Suggester fields
>>>     suggester_fields = {
>>>         'name_suggest': {
>>>             'field': 'name.suggest',
>>>             'suggesters': [
>>>                 SUGGESTER_TERM,
>>>                 SUGGESTER_PHRASE,
>>>                 SUGGESTER_COMPLETION,
>>>             ],
>>>         },
>>>         'city_suggest': {
>>>             'field': 'city.suggest',
>>>             'suggesters': [
>>>                 SUGGESTER_COMPLETION,
>>>             ],
>>>         },
>>>         'state_province_suggest': {
>>>             'field': 'state_province.suggest',
>>>             'suggesters': [
>>>                 SUGGESTER_COMPLETION,
>>>             ],
>>>         },
>>>         'country_suggest': {
>>>             'field': 'country.suggest',
>>>             'suggesters': [
>>>                 SUGGESTER_COMPLETION,
>>>             ],
>>>         },
>>>     }
```

classmethod apply_suggester_completion(*suggester_name*, *queryset*, *options*, *value*)

Apply *completion* suggester.

Parameters

- **suggester_name** (*str*) –
- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_suggester_phrase(*suggester_name*, *queryset*, *options*, *value*)

Apply *phrase* suggester.

Parameters

- **suggester_name** (*str*) –
- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.
Return type elasticsearch_dsl.search.Search

classmethod apply_suggester_term(*suggester_name*, *queryset*, *options*, *value*)
Apply *term* suggester.
Parameters

- **suggester_name** (*str*) –
- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.
Return type elasticsearch_dsl.search.Search

filter_queryset(*request*, *queryset*, *view*)
Filter the queryset.
Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.
Return type elasticsearch_dsl.search.Search

classmethod get_suggester_context(*field*, *suggester_name*, *request*, *view*)
Get suggester context.

Given the following definition (in ViewSets):

```
>>> # Suggester fields
>>> suggester_fields = {
>>>     'title_suggest': {
>>>         'field': 'title.suggest',
>>>         'default_suggester': SUGGESTER_COMPLETION,
>>>     },
>>>     'title_suggest_context': {
>>>         'field': 'title.suggest_context',
>>>         'default_suggester': SUGGESTER_COMPLETION,
>>>         'completion_options': {
>>>             'filters': {
>>>                 'title_suggest_tag': 'tag',
>>>                 'title_suggest_state': 'state',
>>>                 'title_suggest_publisher': 'publisher',
>>>             },
>>>             'size': 10,
>>>         }
>>>     },
>>> }
```

http://localhost:8000/search/books-frontend/suggest/?title_suggest_context=M

When talking about the queries made, we have the following. Multiple values per field are combined with OR:

```
>>> completion={
>>>     'field': options['field'],
>>>     'size': 10,
>>>     'contexts': {
>>>         'tag': ['History', 'Drama'],
>>>     }
>>> }
```

The following works with OR as well, so it seems we have OR only. However, the following construction is more handy, since it allows us to play with boosting nicely. Also, it allows to provide *prefix* param (which in case of the example given below means that suggestions shall match both categories with "Child", "Children", "Childrend's"). Simply put it's treated as *prefix*, rather than *term*.

```
>>> completion={
>>>     'field': options['field'],
>>>     'size': 10,
>>>     'contexts': {
>>>         'tag': [
>>>             {'context': 'History'},
>>>             {'context': 'Drama', 'boost': 2},
>>>             {'context': 'Children', 'prefix': True},
>>>         ],
>>>     },
>>> }
```

Sample query for *category* filter:

/search/books-frontend/suggest/ ?title_suggest_context=M &title_suggest_tag=Art__2.0 &title_suggest_tag=Documentary__2.0__prefix &title_suggest_publisher=Apress

The query params would be:

query_params: <QueryDict: { 'title_suggest_context': ['M'], 'title_suggest_tag': ['Art__2.0', 'Documentary__2.0__prefix'], 'title_suggest_publisher': ['Apress'] }>

Sample query for *geo* filter:

/search/address/suggest/ ?street_suggest_context=M &street_suggest_loc=43.66__-79.22__2.0__10000km

The query params would be:

query_params: <QueryDict: { 'street_suggest_context': ['M'], 'street_suggest_loc': ['Art__43.66__-79.22__2.0__10000km'], }>

Returns

get_suggester_query_params(*request*, *view*)

Get query params to be for suggestions.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Request query params to filter on.

Return type dict

classmethod prepare_suggester_fields(*view*)

Prepare filter fields.

Parameters **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) –
Returns Filtering options.
Return type dict

12.19.1.2.1.44 Module contents

Suggester filtering backends.

class django_elasticsearch_dsl_drf.filter_backends.suggester.**SuggesterFilterBackend**
Bases: rest_framework.filters.BaseFilterBackend, *django_elasticsearch_dsl_drf.filter_backends.mixins.FilterBackendMixin*

Suggester filter backend for Elasticsearch.

Suggestion functionality is exclusive. Once you have queried the SuggesterFilterBackend, the latter will transform your current search query into suggestion search query (which is very different). Therefore, always add it as the very last filter backend.

Example:

```
>>> from django_elasticsearch_dsl_drf.constants import (
>>>     SUGGESTER_TERM,
>>>     SUGGESTER_PHRASE,
>>>     SUGGESTER_COMPLETION,
>>> )
>>> from django_elasticsearch_dsl_drf.filter_backends import (
>>>     SuggesterFilterBackend
>>> )
>>> from django_elasticsearch_dsl_drf.viewsets import DocumentViewSet
>>>
>>> # Local PublisherDocument definition
>>> from .documents import PublisherDocument
>>>
>>> # Local PublisherDocument serializer
>>> from .serializers import PublisherDocumentSerializer
>>>
>>> class PublisherDocumentView(BaseDocumentViewSet):
>>>
>>>     document = PublisherDocument
>>>     serializer_class = PublisherDocumentSerializer
>>>     filter_backends = [
>>>         # ...
>>>         SuggesterFilterBackend,
>>>     ]
>>>     # Suggester fields
>>>     suggester_fields = {
>>>         'name_suggest': {
>>>             'field': 'name.suggest',
>>>             'suggesters': [
>>>                 SUGGESTER_TERM,
>>>                 SUGGESTER_PHRASE,
>>>                 SUGGESTER_COMPLETION,
>>>             ],
>>>         },
>>>         'city_suggest': {
>>>             'field': 'city.suggest',
>>>             'suggesters': [
```

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```
>>>                     SUGGESTER_COMPLETION,
>>>                 ],
>>>             },
>>>             'state_province_suggest': {
>>>                 'field': 'state_province.suggest',
>>>                 'suggesters': [
>>>                     SUGGESTER_COMPLETION,
>>>                 ],
>>>             },
>>>             'country_suggest': {
>>>                 'field': 'country.suggest',
>>>                 'suggesters': [
>>>                     SUGGESTER_COMPLETION,
>>>                 ],
>>>             },
>>>         }
```

classmethod apply_suggester_completion(*suggester_name*, *queryset*, *options*, *value*)

Apply *completion* suggester.

Parameters

- **suggester_name** (*str*) –
- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_suggester_phrase(*suggester_name*, *queryset*, *options*, *value*)

Apply *phrase* suggester.

Parameters

- **suggester_name** (*str*) –
- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_suggester_term(*suggester_name*, *queryset*, *options*, *value*)

Apply *term* suggester.

Parameters

- **suggester_name** (*str*) –
- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

filter_queryset (*request*, *queryset*, *view*)

Filter the queryset.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.

Return type elasticsearch_dsl.search.Search

classmethod get_suggester_context (*field*, *suggester_name*, *request*, *view*)

Get suggester context.

Given the following definition (in ViewSets):

```
>>> # Suggester fields
>>> suggester_fields = {
>>>     'title_suggest': {
>>>         'field': 'title.suggest',
>>>         'default_suggester': SUGGESTER_COMPLETION,
>>>     },
>>>     'title_suggest_context': {
>>>         'field': 'title.suggest_context',
>>>         'default_suggester': SUGGESTER_COMPLETION,
>>>         'completion_options': {
>>>             'filters': {
>>>                 'title_suggest_tag': 'tag',
>>>                 'title_suggest_state': 'state',
>>>                 'title_suggest_publisher': 'publisher',
>>>             },
>>>             'size': 10,
>>>         }
>>>     },
>>> }
```

http://localhost:8000/search/books-frontend/suggest/?title_suggest_context=M

When talking about the queries made, we have the following. Multiple values per field are combined with OR:

```
>>> completion={
>>>     'field': options['field'],
>>>     'size': 10,
>>>     'contexts': {
>>>         'tag': ['History', 'Drama'],
>>>     }
>>> }
```

The following works with OR as well, so it seems we have OR only. However, the following construction is more handy, since it allows us to play with boosting nicely. Also, it allows to provide *prefix* param (which in case of the example given below means that suggestions shall match both categories with "Child", "Children", "Childrend's"). Simply put it's treated as *prefix*, rather than *term*.

```
>>> completion={
>>>     'field': options['field'],
```

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```
>>>     'size': 10,
>>>     'contexts': {
>>>         'tag': [
>>>             {'context': 'History'},
>>>             {'context': 'Drama', 'boost': 2},
>>>             {'context': 'Children', 'prefix': True},
>>>         ],
>>>     },
>>> }
```

Sample query for *category* filter:

/search/books-frontend/suggest/ ?title_suggest_context=M &title_suggest_tag=Art__2.0 &title_suggest_tag=Documentary__2.0__prefix &title_suggest_publisher=Apress

The query params would be:

query_params: <QueryDict: {
'title_suggest_context': ['M'], 'title_suggest_tag': ['Art__2.0', 'Documentary__2.0__prefix'], 'title_suggest_publisher': ['Apress']
}>

Sample query for *geo* filter:

/search/address/suggest/ ?street_suggest_context=M &street_suggest_loc=43.66__-79.22__2.0__10000km

The query params would be:

query_params: <QueryDict: {
'street_suggest_context': ['M'], 'street_suggest_loc': ['Art__43.66__-79.22__2.0__10000km'],
}>

Returns

get_suggester_query_params(*request*, *view*)

Get query params to be for suggestions.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Request query params to filter on.

Return type dict

classmethod prepare_suggester_fields(*view*)

Prepare filter fields.

Parameters **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) –

Returns Filtering options.

Return type dict

class django_elasticsearch_dsl_drf.filter_backends.suggester.**FunctionalSuggesterFilterBacke**

Bases: rest_framework.filters.BaseFilterBackend, *django_elasticsearch_dsl_drf.filter_backends.mixins.FilterBackendMixin*

Suggester filter backend for Elasticsearch.

Suggestion functionality is exclusive. Once you have queried the FunctionalSuggesterFilterBackend, the latter will transform your current search query into another search query (altered). Therefore, always add it as the very last filter backend.

Example:

```
>>> from django_elasticsearch_dsl_drf.constants import (
>>>     FUNCTIONAL_SUGGESTER_COMPLETION_MATCH,
>>>     FUNCTIONAL_SUGGESTER_COMPLETION_PREFIX,
>>>     FUNCTIONAL_SUGGESTER_PHRASE_MATCH,
>>>     FUNCTIONAL_SUGGESTER_PHRASE_MATCH,
>>>     FUNCTIONAL_SUGGESTER_TERM_MATCH,
>>> )
>>> from django_elasticsearch_dsl_drf.filter_backends import (
>>>     FunctionalSuggesterFilterBackend
>>> )
>>> from django_elasticsearch_dsl_drf.viewsets import DocumentViewSet
>>>
>>> # Local PublisherDocument definition
>>> from .documents import PublisherDocument
>>>
>>> # Local PublisherDocument serializer
>>> from .serializers import PublisherDocumentSerializer
>>>
>>> class PublisherDocumentView(DocumentViewSet):
>>>
>>>     document = PublisherDocument
>>>     serializer_class = PublisherDocumentSerializer
>>>     filter_backends = [
>>>         # ...
>>>         FunctionalSuggesterFilterBackend,
>>>     ]
>>>     # Suggester fields
>>>     functional_suggester_fields = {
>>>         'name_suggest': {
>>>             'field': 'name.suggest',
>>>             'suggesters': [
>>>                 FUNCTIONAL_SUGGESTER_COMPLETION_MATCH,
>>>                 FUNCTIONAL_SUGGESTER_COMPLETION_PREFIX,
>>>             ],
>>>         },
>>>         'city_suggest': {
>>>             'field': 'city.suggest',
>>>             'suggesters': [
>>>                 FUNCTIONAL_SUGGESTER_COMPLETION_PREFIX,
>>>             ],
>>>         },
>>>         'state_province_suggest': {
>>>             'field': 'state_province.suggest',
>>>             'suggesters': [
>>>                 FUNCTIONAL_SUGGESTER_COMPLETION_MATCH,
>>>             ],
>>>         },
>>>         'country_suggest': {
>>>             'field': 'country.suggest',
>>>             'suggesters': [
>>>                 FUNCTIONAL_SUGGESTER_COMPLETION_PREFIX,
>>>             ],
>>>         },
>>>     }
```

classmethod apply_query_size(*queryset*, *options*)

Apply query size.

Parameters

- **queryset** –
- **options** –

Returns

classmethod apply_suggester_completion_match(*suggester_name*, *queryset*, *options*, *value*)

Apply *completion* suggester match.

This is effective when used with Ngram fields.

Parameters

- **suggester_name** (*str*) –
- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

classmethod apply_suggester_completion_prefix(*suggester_name*, *queryset*, *options*, *value*)

Apply *completion* suggester prefix.

This is effective when used with Keyword fields.

Parameters

- **suggester_name** (*str*) –
- **queryset** (*elasticsearch_dsl.search.Search*) – Original queryset.
- **options** (*dict*) – Filter options.
- **value** (*str*) – value to filter on.

Returns Modified queryset.

Return type elasticsearch_dsl.search.Search

clean_queryset(*queryset*)

Clean the queryset.

- Remove aggregations.
- Remove highlight.
- Remove sorting options.

Parameters **queryset** –

Returns

extract_field_name(*field_name*)

Extract field name.

For instance, "name.suggest" or "name.raw" becomes "name".

Parameters **field_name** –

Returns

Return type str

filter_queryset(*request*, *queryset*, *view*)

Filter the queryset.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.

- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.
Return type elasticsearch_dsl.search.Search

get_suggester_query_params(*request*, *view*)
Get query params to be for suggestions.
Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Request query params to filter on.
Return type dict

classmethod prepare_suggester_fields(*view*)
Prepare filter fields.
Parameters **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) –
Returns Filtering options.
Return type dict

serialize_queryset(*queryset*, *suggester_name*, *value*, *serializer_field*)
Serialize queryset.

This shall be done here, since we don't want to delegate it to pagination.
Parameters

- **queryset** –
- **suggester_name** –
- **value** –
- **serializer_field** –

Returns

12.19.1.2.2 Submodules

12.19.1.2.3 django_elasticsearch_dsl_drf.filter_backends.faceted_search module

Faceted search backend.

class django_elasticsearch_dsl_drf.filter_backends.faceted_search.**FacetedSearchFilterBacke**
Bases: rest_framework.filters.BaseFilterBackend

Faceted search backend.

Example:

```
>>> from django_elasticsearch_dsl_drf.filter_backends import (
>>>     FacetedSearchFilterBackend
>>> )
>>> from elasticsearch_dsl import TermsFacet, DateHistogramFacet
>>> from django_elasticsearch_dsl_drf.viewsets import (
>>>     BaseDocumentViewSet,
>>> )
```

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```
>>>
>>> # Local article document definition
>>> from .documents import ArticleDocument
>>>
>>> # Local article document serializer
>>> from .serializers import ArticleDocumentSerializer
>>>
>>> class ArticleDocumentView(BaseDocumentViewSet):
>>>
>>>     document = ArticleDocument
>>>     serializer_class = ArticleDocumentSerializer
>>>     filter_backends = [FacetedSearchFilterBackend,]
>>>     faceted_search_fields = {
>>>         'title': 'title.raw',  # Uses `TermsFacet` by default
>>>         'state': {
>>>             'field': 'state.raw',
>>>             'facet': TermsFacet,
>>>         },
>>>         'publisher': {
>>>             'field': 'publisher.raw',
>>>             'facet': TermsFacet,
>>>             'enabled': False,
>>>         },
>>>         'date_published': {
>>>             'field': 'date_published.raw',
>>>             'facet': DateHistogramFacet,
>>>             'options': {
>>>                 'interval': 'month',
>>>             },
>>>             'enabled': True,
>>>         },
>>>
>>>     }
```

Facets make queries to be more heavy. That's why by default all facets are disabled and enabled only explicitly either in the filter options (*enabled* set to True) or via query params *?facet=state&facet=date_published*.

aggregate(*request*, *queryset*, *view*)

Aggregate.

Parameters

- **request** –
- **queryset** –
- **view** –

Returns

construct_facets(*request*, *view*)

Construct facets.

Turns the following structure:

```
>>> {
>>>     'publisher': {
>>>         'field': 'publisher.raw',
>>>         'facet': TermsFacet,
>>>         'enabled': False,
```

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```
>>>     }
>>>     'date_published': {
>>>         'field': 'date_published',
>>>         'facet': DateHistogramFacet,
>>>         'options': {
>>>             'interval': 'month',
>>>         },
>>>         'enabled': True,
>>>     },
>>> }
```

Into the following structure:

```
>>> {
>>>     'publisher': TermsFacet(field='publisher.raw'),
>>>     'publishing_frequency': DateHistogramFacet(
>>>         field='date_published.raw',
>>>         interval='month'
>>>     ),
>>> }
```

faceted_search_param = 'facet'

filter_queryset(*request*, *queryset*, *view*)

Filter the queryset.

Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.

Return type elasticsearch_dsl.search.Search

get_faceted_search_query_params(*request*)

Get faceted search query params.

Parameters **request** (*rest_framework.request.Request*) – Django REST framework request.

Returns List of search query params.

Return type list

classmethod prepare_faceted_search_fields(*view*)

Prepare faceted search fields.

Prepares the following structure:

```
>>> {
>>>     'publisher': {
>>>         'field': 'publisher.raw',
>>>         'facet': TermsFacet,
>>>         'enabled': False,
>>>     }
>>>     'date_published': {
>>>         'field': 'date_published.raw',
>>>         'facet': DateHistogramFacet,
```

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```
>>>         'options': {
>>>             'interval': 'month',
>>>         },
>>>         'enabled': True,
>>>     },
>>> }
```

Parameters **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) –
Returns Faceted search fields options.
Return type dict

12.19.1.2.4 django_elasticsearch_dsl_drf.filter_backends.highlight module

Highlight backend.

class django_elasticsearch_dsl_drf.filter_backends.highlight.**HighlightBackend**
Bases: rest_framework.filters.BaseFilterBackend

Highlight backend.

Example:

```
>>> from django_elasticsearch_dsl_drf.filter_backends import (
>>>     HighlightBackend
>>> )
>>> from django_elasticsearch_dsl_drf.viewsets import (
>>>     BaseDocumentViewSet,
>>> )
>>>
>>> # Local article document definition
>>> from .documents import ArticleDocument
>>>
>>> # Local article document serializer
>>> from .serializers import ArticleDocumentSerializer
>>>
>>> class ArticleDocumentView(BaseDocumentViewSet):
>>>
>>>     document = ArticleDocument
>>>     serializer_class = ArticleDocumentSerializer
>>>     filter_backends = [HighlightBackend,]
>>>     highlight_fields = {
>>>         'author.name': {
>>>             'enabled': False,
>>>             'options': {
>>>                 'fragment_size': 150,
>>>                 'number_of_fragments': 3
>>>             }
>>>         }
>>>         'title': {
>>>             'options': {
>>>                 'pre_tags' : ["<em>"],
>>>                 'post_tags' : ["</em>"]
>>>             },
>>>             'enabled': True,
>>>         },
>>>     }
```

Highlight make queries to be more heavy. That's why by default all highlights are disabled and enabled only explicitly either in the filter options (*enabled* set to True) or via query params *?highlight=author.name&highlight=title*.

filter_queryset(*request*, *queryset*, *view*)
Filter the queryset.
Parameters
- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.
- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.
Return type elasticsearch_dsl.search.Search

get_highlight_query_params(*request*)
Get highlight query params.
Parameters **request** (*rest_framework.request.Request*) – Django REST framework request.
Returns List of search query params.
Return type list

highlight_param = 'highlight'

classmethod prepare_highlight_fields(*view*)
Prepare faceted search fields.

Prepares the following structure:

```
>>> {
>>>     'author.name': {
>>>         'enabled': False,
>>>         'options': {
>>>             'fragment_size': 150,
>>>             'number_of_fragments': 3
>>>         }
>>>     }
>>>     'title': {
>>>         'options': {
>>>             'pre_tags' : ["<em>"],
>>>             'post_tags' : ["</em>"]
>>>         },
>>>         'enabled': True,
>>>     },
>>> }
```

Parameters **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) –
Returns Highlight fields options.
Return type dict

12.19.1.2.5 django_elasticsearch_dsl_drf.filter_backends.mixins module

Mixins.

class django_elasticsearch_dsl_drf.filter_backends.mixins.**FilterBackendMixin**
Bases: object

Filter backend mixin.

classmethod apply_filter(*queryset*, *options=None*, *args=None*, *kwargs=None*)
Apply filter.
Parameters
- **queryset** –
- **options** –
- **args** –
- **kwargs** –

Returns

classmethod apply_query(*queryset*, *options=None*, *args=None*, *kwargs=None*)
Apply query.
Parameters
- **queryset** –
- **options** –
- **args** –
- **kwargs** –

Returns

classmethod split_lookup_complex_multiple_value(*value*, *maxsplit=-1*)
Split lookup complex multiple value.
Parameters
- **value** (*str*) – Value to split.
- **maxsplit** (*int*) – The *maxsplit* option of *string.split*.

Returns Lookup filter split into a list.
Return type list

classmethod split_lookup_complex_value(*value*, *maxsplit=-1*)
Split lookup complex value.
Parameters
- **value** (*str*) – Value to split.
- **maxsplit** (*int*) – The *maxsplit* option of *string.split*.

Returns Lookup filter split into a list.
Return type list

classmethod split_lookup_filter(*value*, *maxsplit=-1*)
Split lookup filter.
Parameters
- **value** (*str*) – Value to split.
- **maxsplit** (*int*) – The *maxsplit* option of *string.split*.

Returns Lookup filter split into a list.
Return type list

classmethod split_lookup_name(*value*, *maxsplit=-1*)
Split lookup value.
Parameters
- **value** (*str*) – Value to split.
- **maxsplit** (*int*) – The *maxsplit* option of *string.split*.

Returns Lookup value split into a list.
Return type list

12.19.1.2.6 django_elasticsearch_dsl_drf.filter_backends.source module

Source backend.

class django_elasticsearch_dsl_drf.filter_backends.source.**SourceBackend**
Bases: rest_framework.filters.BaseFilterBackend

Static source backend.

Example 1 (simple):

```
>>> from django_elasticsearch_dsl_drf.filter_backends import (
>>>     SourceBackend
>>> )
>>> from django_elasticsearch_dsl_drf.viewsets import (
>>>     BaseDocumentViewSet,
>>> )
>>>
>>> # Local article document definition
>>> from .documents import ArticleDocument
>>>
>>> # Local article document serializer
>>> from .serializers import ArticleDocumentSerializer
>>>
>>> class ArticleDocumentView(BaseDocumentViewSet):
>>>
>>>     document = ArticleDocument
>>>     serializer_class = ArticleDocumentSerializer
>>>     filter_backends = [SourceBackend,]
>>>     source = ["title"]
```

Example 2 (complex):

```
>>> # ...
>>>     source = ["title", "author.*"]
```

Example 3 (even more complex):

```
>>> # ...
>>>     source = {
>>>         "includes": ["title", "author.*"],
>>>         "excludes": [ "*.description" ]
>>>     }
```

Source can make queries lighter. However, it can break current functionality. Use it with caution.

filter_queryset(*request*, *queryset*, *view*)
Filter the queryset.
Parameters

- **request** (*rest_framework.request.Request*) – Django REST framework request.
- **queryset** (*elasticsearch_dsl.search.Search*) – Base queryset.

- **view** (*rest_framework.viewsets.ReadOnlyModelViewSet*) – View.

Returns Updated queryset.
Return type elasticsearch_dsl.search.Search

12.19.1.2.7 Module contents

All filter backends.

12.19.1.3 django_elasticsearch_dsl_drf.management package

12.19.1.3.1 Subpackages

12.19.1.3.1.1 django_elasticsearch_dsl_drf.management.commands package

12.19.1.3.1.2 Submodules

12.19.1.3.1.3 django_elasticsearch_dsl_drf.management.commands.elasticsearch_remove_indexes module

class django_elasticsearch_dsl_drf.management.commands.elasticsearch_remove_indexes.**Command**

Bases: `django.core.management.base.BaseCommand`

add_arguments(*parser*)
Entry point for subclassed commands to add custom arguments.

handle(**args*, ***options*)
The actual logic of the command. Subclasses must implement this method.

help = 'Remove all indexes from Elasticsearch'

12.19.1.3.1.4 Module contents

12.19.1.3.2 Module contents

12.19.1.4 django_elasticsearch_dsl_drf.tests package

12.19.1.4.1 Submodules

12.19.1.4.2 django_elasticsearch_dsl_drf.tests.base module

Base tests.

class django_elasticsearch_dsl_drf.tests.base.**BaseRestFrameworkTestCase**(*methodName='runTest'*)
Bases: `django.test.testcases.TransactionTestCase`, *django_elasticsearch_dsl_drf.tests.base.SleepMixin*

Base REST framework test case.

authenticate()
Helper for logging in Genre Coordinator user.
Returns

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

classmethod setUpClass()
Set up class.

class django_elasticsearch_dsl_drf.tests.base.**BaseTestCase**(*methodName='runTest'*)
Bases: django.test.testcases.TransactionTestCase, *django_elasticsearch_dsl_drf.tests.base.SleepMixin*

Base test case.

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

classmethod setUpClass()
Set up class.

class django_elasticsearch_dsl_drf.tests.base.**SleepMixin**
Bases: object

Sleep mix-in.

classmethod sleep(*wait_for_index=2*)
Sleep for N seconds.
Parameters **wait_for_index** –
Returns

12.19.1.4.3 django_elasticsearch_dsl_drf.tests.data_mixins module

Data mixins.

class django_elasticsearch_dsl_drf.tests.data_mixins.**AddressesMixin**
Bases: object

Addresses mixin.

classmethod created_addresses()
Create addresses.
Returns

class django_elasticsearch_dsl_drf.tests.data_mixins.**BooksMixin**
Bases: object

Books mixin.

classmethod create_books()
Create books.
Returns

12.19.1.4.4 django_elasticsearch_dsl_drf.tests.test_faceted_search module

Test faceted search backend.

class django_elasticsearch_dsl_drf.tests.test_faceted_search.**TestFacetedSearch**(*methodName='r*
Bases: *django_elasticsearch_dsl_drf.tests.base.BaseRestFrameworkTestCase*

Test faceted search.

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

classmethod setUpClass()
Set up class.

test_list_results_with_facets()
Test list results with facets.

12.19.1.4.5 django_elasticsearch_dsl_drf.tests.test_filtering_common module

Test filtering backend.

class django_elasticsearch_dsl_drf.tests.test_filtering_common.**TestFilteringCommon**(*methodNa*
Bases: *django_elasticsearch_dsl_drf.tests.base.BaseRestFrameworkTestCase*, *django_elasticsearch_dsl_drf.tests.data_mixins.AddressesMixin*, *django_elasticsearch_dsl_drf.tests.data_mixins.BooksMixin*

Test filtering common.

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

classmethod setUpClass()
Set up.

test_default_filter_lookup()
Test default filter lookup.

Example:
http://localhost:8000/search/books-default-filter-lookup/ ?authors=Robin&authors=Luc

test_field_filter_contains()
Test filter contains.

Example:
http://localhost:8000/api/articles/?state__contains=lishe

test_field_filter_endswith()
Test filter endswith.

Example:
http://localhost:8000/api/articles/?state__endswith=lished

test_field_filter_exclude()
Test filter exclude.

Example:
http://localhost:8000/api/articles/?tags__exclude=children

test_field_filter_exists_false()
Test filter exists.

Example:
http://localhost:8000/api/articles/?non_existent__exists=false

test_field_filter_exists_true()
Test filter exists true.

Example:
http://localhost:8000/api/articles/?tags__exists=true

test_field_filter_gt()
Field filter gt.

Example:
http://localhost:8000/api/users/?id__gt=10

Returns

test_field_filter_gt_with_boost()
Field filter gt with boost.

Example:
http://localhost:8000/api/users/?id__gt=10__2.0

Returns

test_field_filter_gte()
Field filter gte.

Example:
http://localhost:8000/api/users/?id__gte=10

Returns

test_field_filter_in()
Test filter in.

Example:
http://localhost:8000/api/articles/?id__in=1__2__3

test_field_filter_isnull_false()
Test filter isnull true.

Example:
http://localhost:8000/api/articles/?tags__isnull=false

test_field_filter_isnull_true()
Test filter isnull true.

Example:
http://localhost:8000/api/articles/?null_field__isnull=true

test_field_filter_lt()
Field filter lt.

Example:
http://localhost:8000/api/users/?id__lt=10

Returns

test_field_filter_lt_with_boost()
Field filter lt with boost.

Example:
http://localhost:8000/api/users/?id__lt=10__2.0

Returns

test_field_filter_lte()
Field filter lte.

Example:
http://localhost:8000/api/users/?id__lte=10

Returns

test_field_filter_prefix()
Test filter prefix.

Example:
http://localhost:8000/api/articles/?tags__prefix=bio

test_field_filter_range()
Field filter range.

Example:
http://localhost:8000/api/users/?age__range=16__67

test_field_filter_range_with_boost()
Field filter range.

Example:
http://localhost:8000/api/users/?age__range=16__67__2.0

test_field_filter_regexp()
Field filter regexp.

Example:
http://localhost:8000/api/users/?title__regexp=De.{8}Ins.*

test_field_filter_term()
Field filter term.

test_field_filter_term_explicit()
Field filter term.

test_field_filter_terms_list()
Test filter terms.

test_field_filter_terms_string()
Test filter terms.

Example:
http://localhost:8000/api/articles/?id__terms=1__2__3

test_field_filter_wildcard()
Test filter wildcard.

Example:
http://localhost:8000/api/articles/?title__wildcard=*elusional*

test_ids_empty_filter()
Test ids filter with empty value. This should not fail.

Example:
http://localhost:8000/api/articles/?ids=

test_ids_filter()
Test ids filter.

Example:
http://localhost:8000/api/articles/?ids=68__64__58 http://localhost:8000/api/articles/?ids=68&ids=64&ids=58

test_nested_field_filter_term()
Nested field filter term.

test_schema_field_not_required()
Test schema fields always not required

test_schema_fields_with_filter_fields_list()
Test schema field generator

test_various_complex_fields()
Test various complex fields.
Returns

12.19.1.4.6 django_elasticsearch_dsl_drf.tests.test_filtering_geo_spatial module

Test geo-spatial filtering backend.

class django_elasticsearch_dsl_drf.tests.test_filtering_geo_spatial.**TestFilteringGeoSpatial**
Bases: *django_elasticsearch_dsl_drf.tests.base.BaseRestFrameworkTestCase*

Test filtering geo-spatial.

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

classmethod setUpClass()
Set up.

test_field_filter_geo_bounding_box()
Test field filter geo-bounding-box.
Returns

test_field_filter_geo_bounding_box_fail_test()
Test field filter geo-bounding-box (fail test).
Returns

test_field_filter_geo_distance()
Field filter geo-distance.

Example:
http://localhost:8000 /api/publisher/?location__geo_distance=1km__48.8549__2.3000

Returns

test_field_filter_geo_distance_distance_type_arc()
Field filter geo-distance.

Example:
http://localhost:8000 /api/publisher/?location__geo_distance=1km__48.8549__2.3000__arc

Returns

test_field_filter_geo_distance_not_enough_args_fail()
Field filter geo-distance. Fail test on not enough args.

Example:
http://localhost:8000 /api/publisher/?location__geo_distance=1km__48.8549

Returns

test_field_filter_geo_polygon()
Test field filter geo-polygon.
Returns

test_field_filter_geo_polygon_fail_test()
Test field filter geo-polygon (fail test).
Returns

test_field_filter_geo_polygon_string_options()
Test field filter geo-polygon.
Returns

test_field_filter_geo_polygon_string_options_fail_test()
Test field filter geo-polygon (fail test).
Returns

test_field_filter_geo_shape_circle()
Test field filter geo-shape.
Returns

test_field_filter_geo_shape_circle_intersects()
Test field filter geo-shape.
Returns

test_field_filter_geo_shape_envelope()
Test field filter geo-shape.
Returns

12.19.1.4.7 django_elasticsearch_dsl_drf.tests.test_filtering_global_aggregations module

Test filtering *post_filter* backend.

class django_elasticsearch_dsl_drf.tests.test_filtering_global_aggregations.**TestFilteringG**
Bases: *django_elasticsearch_dsl_drf.tests.base.BaseRestFrameworkTestCase*, *django_elasticsearch_dsl_drf.tests.data_mixins.AddressesMixin*, *django_elasticsearch_dsl_drf.tests.data_mixins.BooksMixin*

Test filtering with global aggregations.

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

classmethod setUpClass()
Set up.

test_list_results_with_facets()
Test list results with facets.

12.19.1.4.8 django_elasticsearch_dsl_drf.tests.test_filtering_nested module

Test nested filtering backend.

class django_elasticsearch_dsl_drf.tests.test_filtering_nested.**TestFilteringNested**(*methodNa*
Bases: *django_elasticsearch_dsl_drf.tests.base.BaseRestFrameworkTestCase*, *django_elasticsearch_dsl_drf.tests.data_mixins.AddressesMixin*

Test filtering nested.

base_url

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

classmethod setUpClass()
Set up.

test_field_filter_contains()
Test filter contains.

Example:
http://localhost:8000/api/articles/?state__contains=lishe

test_field_filter_endswith()
Test filter endswith.

Example:
http://localhost:8000/api/articles/?state__endswith=lished

test_field_filter_exclude()
Test filter exclude.

Example:
http://localhost:8000/api/articles/?tags__exclude=children

test_field_filter_exists_false()
Test filter exists.

Example:
http://localhost:8000/api/articles/?non_existent__exists=false

test_field_filter_exists_true()
Test filter exists true.

Example:
http://localhost:8000/api/articles/?tags__exists=true

test_field_filter_in()
Test filter in.

Example:
http://localhost:8000/api/articles/?id__in=1__2__3

test_field_filter_prefix()
Test filter prefix.

Example:
http://localhost:8000/api/articles/?tags__prefix=bio

test_field_filter_range()
Field filter range.

Example:
http://localhost:8000/api/users/?age__range=16__67

test_field_filter_range_with_boost()
Field filter range.

Example:
http://localhost:8000/api/users/?age__range=16__67__2.0

test_field_filter_term()
Field filter term.

test_field_filter_term_explicit()
Field filter term.

test_field_filter_terms_list()
Test filter terms.

test_field_filter_terms_string()
Test filter terms.

Example:
http://localhost:8000/api/articles/?id__terms=1__2__3

test_field_filter_wildcard()
Test filter wildcard.

Example:
http://localhost:8000/api/articles/?title__wildcard=*elusional*

test_schema_field_not_required()
Test schema fields always not required

test_schema_fields_with_filter_fields_list()
Test schema field generator

12.19.1.4.9 django_elasticsearch_dsl_drf.tests.test_filtering_post_filter module

Test filtering *post_filter* backend.

class django_elasticsearch_dsl_drf.tests.test_filtering_post_filter.**TestFilteringPostFilte**
Bases: *django_elasticsearch_dsl_drf.tests.base.BaseRestFrameworkTestCase*, *django_elasticsearch_dsl_drf.tests.data_mixins.AddressesMixin*, *django_elasticsearch_dsl_drf.tests.data_mixins.BooksMixin*

Test filtering *post_filter*.

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

classmethod setUpClass()
Set up.

test_field_filter_contains()
Test filter contains.

Example:
http://localhost:8000/api/articles/?state__contains=lishe

test_field_filter_endswith()
Test filter endswith.

Example:
http://localhost:8000/api/articles/?state__endswith=lished

test_field_filter_exclude()
Test filter exclude.

Example:
http://localhost:8000/api/articles/?tags__exclude=children

test_field_filter_exists_false()
Test filter exists.

Example:
http://localhost:8000/api/articles/?non_existent__exists=false

test_field_filter_exists_true()
Test filter exists true.

Example:
http://localhost:8000/api/articles/?tags__exists=true

test_field_filter_gt()
Field filter gt.

Example:

http://localhost:8000/api/users/?id__gt=10

Returns

test_field_filter_gt_with_boost()
Field filter gt with boost.

Example:
http://localhost:8000/api/users/?id__gt=10;2.0

Returns

test_field_filter_gte()
Field filter gte.

Example:
http://localhost:8000/api/users/?id__gte=10

Returns

test_field_filter_in()
Test filter in.

Example:
http://localhost:8000/api/articles/?id__in=1;2;3

test_field_filter_isnull_false()
Test filter isnull true.

Example:
http://localhost:8000/api/articles/?tags__isnull=false

test_field_filter_isnull_true()
Test filter isnull true.

Example:
http://localhost:8000/api/articles/?null_field__isnull=true

test_field_filter_lt()
Field filter lt.

Example:
http://localhost:8000/api/users/?id__lt=10

Returns

test_field_filter_lt_with_boost()
Field filter lt with boost.

Example:
http://localhost:8000/api/users/?id__lt=10;2.0

Returns

test_field_filter_lte()
Field filter lte.

Example:
http://localhost:8000/api/users/?id__lte=10

Returns

test_field_filter_prefix()
Test filter prefix.

Example:

http://localhost:8000/api/articles/?tags__prefix=bio

test_field_filter_range()
Field filter range.

Example:
http://localhost:8000/api/users/?age__range=16;67

test_field_filter_range_with_boost()
Field filter range.

Example:
http://localhost:8000/api/users/?age__range=16;67;2.0

test_field_filter_term()
Field filter term.

test_field_filter_term_explicit()
Field filter term.

test_field_filter_terms_list()
Test filter terms.

test_field_filter_terms_string()
Test filter terms.

Example:
http://localhost:8000/api/articles/?id__terms=1;2;3

test_field_filter_wildcard()
Test filter wildcard.

Example:
http://localhost:8000/api/articles/?title__wildcard=*elusional*

test_ids_filter()
Test ids filter.

Example:
http://localhost:8000/api/articles/?ids=68;64;58 http://localhost:8000/api/articles/?ids=68&ids=64&ids=58

test_list_results_with_facets()
Test list results with facets.

test_schema_field_not_required()
Test schema fields always not required

test_schema_fields_with_filter_fields_list()
Test schema field generator

test_various_complex_fields()
Test various complex fields.
Returns

12.19.1.4.10 django_elasticsearch_dsl_drf.tests.test_functional_suggesters module

Test functional suggestions backend.

class django_elasticsearch_dsl_drf.tests.test_functional_suggesters.**TestFunctionalSuggester**
Bases: *django_elasticsearch_dsl_drf.tests.base.BaseRestFrameworkTestCase*, *django_elasticsearch_dsl_drf.tests.data_mixins.AddressesMixin*

Test functional suggesters.

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

classmethod setUpClass()
Set up class.

test_suggesters_completion()
Test suggesters completion.

test_suggesters_completion_no_args_provided()
Test suggesters completion with no args provided.

12.19.1.4.11 django_elasticsearch_dsl_drf.tests.test_helpers module

Test helpers.

class django_elasticsearch_dsl_drf.tests.test_helpers.**TestHelpers**(*methodName='runTest'*)
Bases: *django_elasticsearch_dsl_drf.tests.base.BaseTestCase*

Test helpers.

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

classmethod setUpClass()
Set up class.

test_filter_by_field()
Filter by field.

12.19.1.4.12 django_elasticsearch_dsl_drf.tests.test_highlight module

Test highlight backend.

class django_elasticsearch_dsl_drf.tests.test_highlight.**TestHighlight**(*methodName='runTest'*)
Bases: *django_elasticsearch_dsl_drf.tests.base.BaseRestFrameworkTestCase*

Test highlight.

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

classmethod setUpClass()
Set up class.

test_list_results_with_highlights()
Test list results with facets.

12.19.1.4.13 django_elasticsearch_dsl_drf.tests.test_more_like_this module

Test more-like-this functionality.

class django_elasticsearch_dsl_drf.tests.test_more_like_this.**TestMoreLikeThis**(*methodName='ru*
Bases: *django_elasticsearch_dsl_drf.tests.base.BaseRestFrameworkTestCase*

Test suggesters.

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

classmethod setUpClass()
Set up class.

test_more_like_this()
Test more-like-this.

12.19.1.4.14 django_elasticsearch_dsl_drf.tests.test_ordering_common module

Test ordering backend.

class django_elasticsearch_dsl_drf.tests.test_ordering_common.**TestOrdering**(*methodName='runTest*
Bases: *django_elasticsearch_dsl_drf.tests.base.BaseRestFrameworkTestCase*

Test ordering.

static deep_get(*dic*, *keys*, *default=None*)
Returns value at period separated keys in dictionary or default

From https://stackoverflow.com/a/46890853
Parameters

- **dic** (*dict*) – Dictionary to retrieve value from.
- **keys** (*str*) – Period separated path of keys
- **default** (*str*) – Default value to return if keys not found

Returns Value at keys or default

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

classmethod setUpClass()
Set up class.

test_address_default_nested_order_by()

test_address_default_order_by()
Test if default ordering on addresses is correct (asc).

test_address_order_by_nested_field_continent_ascending()
Order by field *continent.country.name.raw* ascending.

test_address_order_by_nested_field_continent_descending()
Order by field *continent.country.name.raw* descending.

test_address_order_by_nested_field_country_ascending()
Order by field *continent.country.name.raw* ascending.

test_address_order_by_nested_field_country_descending()
Order by field *continent.country.name.raw* descending.

test_author_default_order_by()
Author order by default.

test_author_order_by_field_id_ascending()
Order by field *name* ascending.

test_author_order_by_field_id_descending()
Order by field *id* descending.

test_author_order_by_field_name_ascending()
Order by field *name* ascending.

test_author_order_by_field_name_descending()
Order by field *name* descending.

test_book_default_order_by()
Book order by default.

test_book_order_by_field_id_ascending()
Order by field *id* ascending.

test_book_order_by_field_id_descending()
Order by field *id* descending.

test_book_order_by_field_title_ascending()
Order by field *title* ascending.

test_book_order_by_field_title_descending()
Order by field *title* descending.

test_book_order_by_non_existent_field()
Order by non-existent field.

test_schema_field_not_required()
Test schema fields always not required

test_schema_fields_with_filter_fields_list()
Test schema field generator

12.19.1.4.15 django_elasticsearch_dsl_drf.tests.test_ordering_geo_spatial module

Test geo-spatial ordering filter backend.

class django_elasticsearch_dsl_drf.tests.test_ordering_geo_spatial.**TestOrderingGeoSpatial**(*
Bases: *django_elasticsearch_dsl_drf.tests.base.BaseRestFrameworkTestCase*

Test ordering geo-spatial.

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

classmethod setUpClass()
Set up.

test_field_filter_geo_distance()
Field filter geo_distance.

Example:
http://localhost:8000 /api/publisher/?ordering=location;48.85;2.30;km;plane

12.19.1.4.16 django_elasticsearch_dsl_drf.tests.test_pagination module

Test pagination.

class django_elasticsearch_dsl_drf.tests.test_pagination.**TestPagination**(*methodName='runTest'*)
Bases: *django_elasticsearch_dsl_drf.tests.base.BaseRestFrameworkTestCase*

Test pagination.

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

classmethod setUpClass()
Set up class.

test_pagination()
Test pagination.

12.19.1.4.17 django_elasticsearch_dsl_drf.tests.test_pip_helpers module

Test pip_helpers.

class django_elasticsearch_dsl_drf.tests.test_pip_helpers.**TestPipHelpers**(*methodName='runTest'*)
Bases: unittest.case.TestCase

Test pip_helpers.

pytestmark = [Mark(name='django_db', args=(), kwargs={})]

classmethod setUpClass()
Hook method for setting up class fixture before running tests in the class.

test_check_if_installed()
Test *check_if_installed*.
Returns

test_get_installed_packages()
Test *get_installed_packages*.
Returns

test_get_installed_packages_with_versions()
Test *get_installed_packages*.
Returns

12.19.1.4.18 django_elasticsearch_dsl_drf.tests.test_query_friendly_pagination module

Test pagination.

class django_elasticsearch_dsl_drf.tests.test_query_friendly_pagination.**TestQueryFriendlyPa**
Bases: *django_elasticsearch_dsl_drf.tests.base.BaseRestFrameworkTestCase*

Test pagination.

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

classmethod setUpClass()
Set up class.

test_pagination()
Test pagination.

12.19.1.4.19 django_elasticsearch_dsl_drf.tests.test_search module

Test search backend.

class django_elasticsearch_dsl_drf.tests.test_search.**TestSearch**(*methodName='runTest'*)
Bases: *django_elasticsearch_dsl_drf.tests.base.BaseRestFrameworkTestCase*

Test search.

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

classmethod setUpClass()
Set up class.

test_compound_search_boost_by_field()

test_compound_search_by_field()

test_compound_search_by_field_multi_terms()

test_compound_search_by_nested_field()

test_schema_field_not_required()
Test schema fields always not required

test_schema_fields_with_filter_fields_list()
Test schema field generator

test_search_boost(*url=None*, *search_field='search'*)
Search boost.
Returns

test_search_boost_compound(*search_field='search'*)

test_search_by_field(*url=None*, *search_field='search'*)
Search by field.

test_search_by_field_multi_terms(*url=None*, *search_field='search'*)
Search by field, multiple terms.

test_search_by_nested_field(*url=None*)
Search by field.

class django_elasticsearch_dsl_drf.tests.test_search.**TestSearchCustomCases**(*methodName='runTest*
Bases: *django_elasticsearch_dsl_drf.tests.base.BaseRestFrameworkTestCase*

Test search.

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

test_search_any_word_in_indexed_fields()
Test search any word in indexed fields.
Returns

12.19.1.4.20 django_elasticsearch_dsl_drf.tests.test_search_multi_match module

Test multi match search filter backend.

class django_elasticsearch_dsl_drf.tests.test_search_multi_match.**TestMultiMatchSearch**(*metho*
Bases: *django_elasticsearch_dsl_drf.tests.base.BaseRestFrameworkTestCase*

Test multi match search.

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

classmethod setUpClass()
Set up class.

test_schema_field_not_required()
Test schema fields always not required

test_schema_fields_with_filter_fields_list()
Test schema field generator

test_search(*url=None*)
Search.

test_search_boost(*url=None*)
Search boost.
Returns

test_search_boost_selected_fields(*url=None*)
Search boost.
Returns

test_search_selected_fields(*url=None*)
Search boost.
Returns

12.19.1.4.21 django_elasticsearch_dsl_drf.tests.test_search_simple_query_string module

Test multi match search filter backend.

class django_elasticsearch_dsl_drf.tests.test_search_simple_query_string.**TestSimpleQuerySt**
Bases: *django_elasticsearch_dsl_drf.tests.base.BaseRestFrameworkTestCase*

Test simple query string search.

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

classmethod setUpClass()
Set up class.

test_schema_field_not_required()
Test schema fields always not required

test_schema_fields_with_filter_fields_list()
Test schema field generator

test_search_boost_selected_fields(*url=None*)
Search boost.
Returns

test_search_selected_fields(*url=None*)
Search boost.
Returns

test_search_with_quotes(*url=None*)
Search with quotes.

test_search_with_quotes_alternative()
Test search by field.
Parameters **url** –
Returns

test_search_with_quotes_boost(*url=None*)
Search boost.
Returns

test_search_with_quotes_boost_alternative()
Search boost.
Returns

test_search_without_quotes(*url=None*)
Test search without quotes. This does not work on Elasticsearch 6.x.
Parameters **url** –
Returns

test_search_without_quotes_boost(*url=None*)
Search boost without quotes. Does not work on Elasticsearch 6.x.
Returns

12.19.1.4.22 django_elasticsearch_dsl_drf.tests.test_serializers module

Test serializers.

class django_elasticsearch_dsl_drf.tests.test_serializers.**TestSerializers**(*methodName='runTest'*)
Bases: *django_elasticsearch_dsl_drf.tests.base.BaseRestFrameworkTestCase*

Test serializers.

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

test_serializer_document_equals_to_none()
Test serializer no document specified.

test_serializer_fields_and_exclude()
Test serializer fields and exclude.

test_serializer_meta_del_attr()
Test serializer set attr.

test_serializer_meta_set_attr()
Test serializer set attr.

test_serializer_no_document_specified()
Test serializer no document specified.

12.19.1.4.23 django_elasticsearch_dsl_drf.tests.test_source module

Test source backend.

class django_elasticsearch_dsl_drf.tests.test_source.**TestSource**(*methodName='runTest'*)
Bases: *django_elasticsearch_dsl_drf.tests.base.BaseRestFrameworkTestCase*

Test source.

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

classmethod setUpClass()
Set up class.

test_list_results()
Test list results.

12.19.1.4.24 django_elasticsearch_dsl_drf.tests.test_suggesters module

Test suggestions backend.

class django_elasticsearch_dsl_drf.tests.test_suggesters.**TestContextSuggesters**(*methodName='r*
Bases: *django_elasticsearch_dsl_drf.tests.base.BaseRestFrameworkTestCase*, *django_elasticsearch_dsl_drf.tests.data_mixins.AddressesMixin*

Test context suggesters.

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

classmethod setUpClass()
Set up class.

test_suggesters_completion_context()
Test suggesters completion context.

class django_elasticsearch_dsl_drf.tests.test_suggesters.**TestSuggesters**(*methodName='runTest'*)
Bases: *django_elasticsearch_dsl_drf.tests.base.BaseRestFrameworkTestCase*, *django_elasticsearch_dsl_drf.tests.data_mixins.AddressesMixin*

Test suggesters.

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

classmethod setUpClass()
Set up class.

test_nested_fields_suggesters_completion()
Test suggesters completion for nested fields.

test_suggesters_completion()
Test suggesters completion.

test_suggesters_completion_no_args_provided()
Test suggesters completion with no args provided.

test_suggesters_phrase()
Test suggesters phrase.

test_suggesters_term()
Test suggesters term.

class django_elasticsearch_dsl_drf.tests.test_suggesters.**TestSuggestersEmptyIndex**(*methodName*
Bases: *django_elasticsearch_dsl_drf.tests.base.BaseRestFrameworkTestCase*, *django_elasticsearch_dsl_drf.tests.data_mixins.AddressesMixin*

Test suggesters on empty index.

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

classmethod setUpClass()
Set up class.

test_suggesters_on_empty_index()
Test suggesters phrase.

12.19.1.4.25 django_elasticsearch_dsl_drf.tests.test_versions module

class django_elasticsearch_dsl_drf.tests.test_versions.**VersionsTest**(*methodName='runTest'*)
Bases: unittest.case.TestCase

Tests of django_elasticsearch_dsl_drf.versions module.

setUp()
Hook method for setting up the test fixture before exercising it.

test_elasticsearch_dsl_6_3_0()
Tests as if we were using elasticsearch_dsl==6.3.0.

test_elasticsearch_dsl_7_0_0()
Tests as if we were using elasticsearch_dsl==7.0.0.

12.19.1.4.26 django_elasticsearch_dsl_drf.tests.test_views module

Test views.

class django_elasticsearch_dsl_drf.tests.test_views.**TestViews**(*methodName='runTest'*)
Bases: *django_elasticsearch_dsl_drf.tests.base.BaseRestFrameworkTestCase*

Test views.

pytestmark = [Mark(name='django_db', args=(), kwargs={}), Mark(name='django_db', args=

classmethod setUpClass()
Set up class.

test_detail_view()
Test detail view.

test_detail_view_with_custom_lookup()
Test detail view with a custom lookup field.

test_listing_view()
Test listing view.

12.19.1.4.27 django_elasticsearch_dsl_drf.tests.test_wrappers module

Test wrappers.

class django_elasticsearch_dsl_drf.tests.test_wrappers.**TestWrappers**(*methodName='runTest'*)
Bases: unittest.case.TestCase

Test wrappers.

pytestmark = [Mark(name='django_db', args=(), kwargs={})]

classmethod setUpClass()
Hook method for setting up class fixture before running tests in the class.

test_dict_to_obj()
Test *dict_to_obj*.
Returns

test_obj_to_dict()
Test *obj_to_dict*.
Returns

test_wrapper_as_json()
Test **:Wrapper:'as_json'** property.

12.19.1.4.28 Module contents

12.19.2 Submodules

12.19.3 django_elasticsearch_dsl_drf.analyzers module

Analyzers.

12.19.4 django_elasticsearch_dsl_drf.apps module

Apps.

class django_elasticsearch_dsl_drf.apps.**Config**(*app_name*, *app_module*)
Bases: django.apps.config.AppConfig

Config.

label = 'django_elasticsearch_dsl_drf'

name = 'django_elasticsearch_dsl_drf'

12.19.5 django_elasticsearch_dsl_drf.compat module

Transitional compatibility module. Contains various field wrappers and helpers for painless (testing of) Elastic 2.x to Elastic 5.x transition. This module is not supposed to solve all transition issues for you. Better move to Elastic 5.x as soon as possible.

class django_elasticsearch_dsl_drf.compat.**KeywordField**(*attr=None*, ***kwargs*)
Bases: django_elasticsearch_dsl.fields.DEDField, elasticsearch_dsl.field.Keyword

django_elasticsearch_dsl_drf.compat.**StringField**(***kwargs*)
String field.
Parameters **kwargs** –
Returns

12.19.6 django_elasticsearch_dsl_drf.constants module

Constants module. Contains Elasticsearch constants, lookup constants, functional constants, suggesters, etc.

12.19.7 django_elasticsearch_dsl_drf.elasticsearch_helpers module

django_elasticsearch_dsl_drf.elasticsearch_helpers.**delete_all_indices**(*with_protected=False*)
Delete all indices.
Args: with_protected (bool):
Returns: tuple: Tuple of two lists with removed and errored indices.

django_elasticsearch_dsl_drf.elasticsearch_helpers.**get_all_indices**(*with_protected=False*)
Get all indices.
Args: with_protected (bool):
Returns: list: List of indices.

12.19.8 django_elasticsearch_dsl_drf.helpers module

Helpers.

django_elasticsearch_dsl_drf.helpers.**get_document_for_model**(*model*)
Get document for model given.
Parameters **model** (Subclass of *django.db.models.Model*.) – Model to get document index for.
Returns Document index for the given model.
Return type Subclass of *django_elasticsearch_dsl.Document*.

django_elasticsearch_dsl_drf.helpers.**get_index_and_mapping_for_model**(*model*)
Get index and mapping for model.
Parameters **model** (Subclass of *django.db.models.Model*.) – Django model for which to get index and mapping for.

Returns Index and mapping values.
Return type tuple.

django_elasticsearch_dsl_drf.helpers.**more_like_this**(*obj*, *fields*, *max_query_terms=25*, *min_term_freq=2*, *min_doc_freq=5*, *max_doc_freq=0*, *query=None*)

More like this.

https://www.elastic.co/guide/en/elasticsearch/reference/current/ query-dsl-mlt-query.html

Parameters

- **obj** (Instance of *django.db.models.Model* (sub-classed) model.) – Django model instance for which similar objects shall be found.
- **fields** (*list*) – Fields to search in.
- **max_query_terms** (*int*) –
- **min_term_freq** (*int*) –
- **min_doc_freq** (*int*) –
- **max_doc_freq** (*int*) –
- **query** (*elasticsearch_dsl.query.Q*) – Q query

Returns List of objects.
Return type elasticsearch_dsl.search.Search

Example:

```
>>> from django_elasticsearch_dsl_drf.helpers import more_like_this
>>> from books.models import Book
>>> book = Book.objects.first()
>>> similar_books = more_like_this(
>>>     book,
>>>     ['title', 'description', 'summary']
>>> )
```

django_elasticsearch_dsl_drf.helpers.**sort_by_list**(*unsorted_dict*, *sorted_keys*)

Sort an OrderedDict by list of sorted keys.

Parameters

- **unsorted_dict** (*collections.OrderedDict*) – Source dictionary.
- **sorted_keys** (*list*) – Keys to sort on.

Returns Sorted dictionary.
Return type collections.OrderedDict

12.19.9 django_elasticsearch_dsl_drf.pagination module

Pagination.

class django_elasticsearch_dsl_drf.pagination.**LimitOffsetPagination**(**args*, ***kwargs*)

Bases: rest_framework.pagination.LimitOffsetPagination, django_elasticsearch_dsl_drf.pagination.GetCountMixin

A limit/offset pagination.

Example:

http://api.example.org/accounts/?limit=100 http://api.example.org/accounts/?offset=400&limit=100

get_facets(*facets=None*)

Get facets.

Parameters **facets** –

Returns

get_paginated_response(*data*)

Get paginated response.

Parameters **data** –

Returns

get_paginated_response_context(*data*)

Get paginated response data.

Parameters **data** –

Returns

paginate_queryset(*queryset*, *request*, *view=None*)

class django_elasticsearch_dsl_drf.pagination.**Page**(*object_list*, *number*, *paginator*, *facets*)

Bases: `django.core.paginator.Page`, `django_elasticsearch_dsl_drf.pagination.GetCountMixin`

Page for Elasticsearch.

class django_elasticsearch_dsl_drf.pagination.**PageNumberPagination**(**args*, ***kwargs*)

Bases: `rest_framework.pagination.PageNumberPagination`, `django_elasticsearch_dsl_drf.pagination.GetCountMixin`

Page number pagination.

A simple page number based style that supports page numbers as query parameters.

Example:
http://api.example.org/accounts/?page=4 http://api.example.org/accounts/?page=4&page_size=100

django_paginator_class

alias of *Paginator*

get_facets(*page=None*)

Get facets.

Parameters **page** –

Returns

get_paginated_response(*data*)

Get paginated response.

Parameters **data** –

Returns

get_paginated_response_context(*data*)

Get paginated response data.

Parameters **data** –

Returns

paginate_queryset(*queryset*, *request*, *view=None*)

Paginate a queryset.

Paginate a queryset if required, either returning a page object, or *None* if pagination is not configured for this view.

Parameters

- **queryset** –
- **request** –
- **view** –

Returns

class django_elasticsearch_dsl_drf.pagination.**Paginator**(*object_list*, *per_page*, *orphans=0*, *allow_empty_first_page=True*)

Bases: `django.core.paginator.Paginator`

Paginator for Elasticsearch.

page(*number*)

Returns a Page object for the given 1-based page number.

Parameters **number** –

Returns

class django_elasticsearch_dsl_drf.pagination.**QueryFriendlyPageNumberPagination**(**args*, ***kwargs*)

Bases: *django_elasticsearch_dsl_drf.pagination.PageNumberPagination*

Page number pagination.

A simple page number based style that supports page numbers as query parameters.

Example:
http://api.example.org/accounts/?page=4 http://api.example.org/accounts/?page=4&page_size=100

django_paginator_class

alias of *QueryFriendlyPaginator*

orphans_query_param = 'orphans'

page_size_query_param = 'page_size'

paginate_queryset(*queryset*, *request*, *view=None*)

Paginate a queryset.

Paginate a queryset if required, either returning a page object, or *None* if pagination is not configured for this view.

Parameters

- **queryset** –
- **request** –
- **view** –

Returns

class django_elasticsearch_dsl_drf.pagination.**QueryFriendlyPaginator**(*object_list*, *per_page*, *orphans=0*, *allow_empty_first_page=True*)

Bases: *django_elasticsearch_dsl_drf.pagination.Paginator*, `django_elasticsearch_dsl_drf.pagination.GetCountMixin`

Paginator for Elasticsearch.

page(*number*)

Returns a Page object for the given 1-based page number.

Parameters **number** –

Returns

12.19.10 django_elasticsearch_dsl_drf.pip_helpers module

Pip helpers module.

django_elasticsearch_dsl_drf.pip_helpers.**check_if_installed**(*package*, *installed_packages=None*)

Check if package is installed.

Parameters

- **package** (*str*) –
- **installed_packages** (*iterable*) –

Returns

Return type bool

django_elasticsearch_dsl_drf.pip_helpers.**get_installed_packages**(*with_versions=False*)

Get installed packages.

Parameters **with_versions** (*bool*) – If set to True, returned with versions.

Returns

Return type list

12.19.11 django_elasticsearch_dsl_drf.serializers module

Serializers.

class django_elasticsearch_dsl_drf.serializers.**DocumentSerializer**(*instance=None*, *data=<class 'rest_framework.fields.empty'>*, ***kwargs*)

Bases: rest_framework.serializers.Serializer

A dynamic DocumentSerializer class.

create(*validated_data*)

Create.

Do nothing.

Parameters **validated_data** –

Returns

get_fields()

Get the required fields for serializing the result.

update(*instance*, *validated_data*)

Update.

Do nothing.

Parameters

- **instance** –
- **validated_data** –

Returns

class django_elasticsearch_dsl_drf.serializers.**DocumentSerializerMeta**

Bases: rest_framework.serializers.SerializerMetaclass

Metaclass for the DocumentSerializer.

Ensures that all declared subclasses implemented a Meta.

class django_elasticsearch_dsl_drf.serializers.**Meta**

Bases: type

Template for the DocumentSerializerMeta.Meta class.

exclude = ()

field_aliases = {}

field_options = {}

fields = ()

ignore_fields = ()

index_aliases = {}

index_classes = ()

search_fields = ()

serializers = ()

12.19.12 django_elasticsearch_dsl_drf.utils module

Utils.

class django_elasticsearch_dsl_drf.utils.**DictionaryProxy**(*mapping*, *meta=None*)

Bases: object

Dictionary proxy.

to_dict()

To dict.

Returns

class django_elasticsearch_dsl_drf.utils.**EmptySearch**(**args*, ***kwargs*)

Bases: object

Empty Search.

execute(**args*, ***kwargs*)

highlight(**args*, ***kwargs*)

hits

sort(**args*, ***kwargs*)

to_dict(**args*, ***kwargs*)

12.19.13 django_elasticsearch_dsl_drf.versions module

Contains information about the current Elasticsearch version in use, including (LTE and GTE).

django_elasticsearch_dsl_drf.versions.**get_elasticsearch_version**(*default=(2, 0, 0)*)

Get Elasticsearch version.

Parameters **default** (*tuple*) – Default value. Mainly added for building the docs when Elasticsearch is not running.

Returns

Return type list

12.19.14 django_elasticsearch_dsl_drf.viewsets module

Base ViewSets.

class django_elasticsearch_dsl_drf.viewsets.**BaseDocumentViewSet**(**args*, ***kwargs*)

Bases: rest_framework.viewsets.ReadOnlyModelViewSet

Base document ViewSet.

dictionary_proxy
alias of *django_elasticsearch_dsl_drf.utils.DictionaryProxy*

document = None

document_uid_field = 'id'

get_object()
Get object.

get_queryset()
Get queryset.

ignore = []

pagination_class
alias of *django_elasticsearch_dsl_drf.pagination.PageNumberPagination*

class django_elasticsearch_dsl_drf.viewsets.**DocumentViewSet**(**args*, ***kwargs*)

Bases: *django_elasticsearch_dsl_drf.viewsets.BaseDocumentViewSet*, *django_elasticsearch_dsl_drf.viewsets.SuggestMixin*, *django_elasticsearch_dsl_drf.viewsets.FunctionalSuggestMixin*

DocumentViewSet with suggest and functional-suggest mix-ins.

class django_elasticsearch_dsl_drf.viewsets.**FunctionalSuggestMixin**

Bases: object

Functional suggest mixin.

functional_suggest(*request*)
Functional suggest functionality.
Parameters **request** –
Returns

class django_elasticsearch_dsl_drf.viewsets.**MoreLikeThisMixin**

Bases: object

More-like-this mixin.

more_like_this(*request*, *pk=None*, *id=None*)
More-like-this functionality detail view.
Parameters **request** –
Returns

class django_elasticsearch_dsl_drf.viewsets.**SuggestMixin**

Bases: object

Suggest mixin.

suggest(*request*)
Suggest functionality.

12.19.15 django_elasticsearch_dsl_drf.wrappers module

django_elasticsearch_dsl_drf.wrappers.**dict_to_obj**(*mapping*)
dict to obj mapping.
Parameters **mapping** (*dict*) –
Returns
Return type *Wrapper*

django_elasticsearch_dsl_drf.wrappers.**obj_to_dict**(*obj*)
Wrapper to dict.
Parameters **obj** (**'obj':Wrapper:**) –
Returns
Return type dict

class django_elasticsearch_dsl_drf.wrappers.**Wrapper**
Bases: object

Wrapper.

Example: >>> from django_elasticsearch_dsl_drf.wrappers import dict_to_obj >>> >>> mapping = { >>> 'country': { >>> 'name': 'Netherlands', >>> 'province': { >>> 'name': 'North Holland', >>> 'city': { >>> 'name': 'Amsterdam', >>> } >>> } >>> } >>> } >>> >>> wrapper = dict_to_obj(mapping) >>> wrapper.country.name >>> "Netherlands" >>> wrapper.country.province.name >>> "North Holland" >>> wrapper.country.province.city.name >>> "Amsterdam" >>> wrapper.as_dict >>> { >>> 'country': { >>> 'name': 'Netherlands', >>> 'province': { >>> 'name': 'North Holland', >>> 'city': { >>> 'name': 'Amsterdam', >>> } >>> } >>> } >>> } >>> str(wrapper) >>> "Netherlands"

as_dict
As dict.
Returns
Return type dict

as_json
As JSON.
Returns
Return type str

12.19.16 Module contents

Integrate Elasticsearch DSL with Django REST framework.

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