
django-classifier Documentation

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Flexible constructor to create dynamic list of heterogeneous properties for some kind of entity. This set of helpers useful to create properties like contacts or attributes for describe car/computer/etc.

You must create your own models for each kind of entity but it gives more flexibility, more simpler and allow to easily change default behavior.

read [Tutorial](#) to see all picture of idea.

1.1 Installation

1.1.1 Requirements

- Python 2.7, 3.4, 3.5
- Django 1.8, 1.9, 1.10

1.1.2 Official releases

Official releases are available from [PyPI](#).

Download the .zip distribution file and unpack it. Inside is a script named `setup.py`. Enter this command:

```
python setup.py install
```

...and the package will install automatically.

or just install with help of pip:

```
pip install django-classifier
```

1.1.3 Development version

Alternatively, you can get the latest source from our [git](#) repository:

```
git clone http://github.com/django-stars/django-classifier.git django-classifier
```

Add `django-classifier/classifier` folder to `PYTHONPATH`.

You can verify that the application is available on your `PYTHONPATH` by opening a Python interpreter and entering the following commands:

```
>> import classifier
>> classifier.VERSION
(0, 2)
```

Caution: The development version may contain bugs which are not present in the release version and introduce backwards-incompatible changes.

1.2 Tutorial

1.2.1 Installation

Simplest way:

```
pip install django-classifier
```

see more at *Installation*.

1.2.2 Configuration

Add *classifier* to `INSTALLED_APPS` in your `setting.py` file:

```
INSTALLED_APPS = (  
    'django.contrib.auth',  
    # ...  
    'classifier',  
)
```

1.2.3 Set up your models

You need to create two models for classifier structure and one for data.

First it's basic model without extra data inherited from *ClassifierAbstract*:

```
from classifier.models import ClassifierAbstract  
  
class ContactClassifier(ClassifierAbstract):  
    pass
```

Second model must contain `ForeignKey` to model that we created before and inherited from *ClassifierLabelAbstract*:

```
from classifier.models import ClassifierLabelAbstract  
  
class ContactClassifierLabel(ClassifierLabelAbstract):  
    classifier = models.ForeignKey(ContactClassifier, related_name='labels')
```

Model for data pretty simple in general: `ForeignKey` to label model (`ContactClassifierLabel` in tutorial) and `CharField` for value:

```
from django.conf import settings  
from django.db import models  
  
class Contact(models.Model):  
    user = models.ForeignKey(  
        settings.AUTH_USER_MODEL,
```

```

        related_name='contacts'
    )
    kind = models.ForeignKey(ContactClassifier)
    value = models.CharField(max_length=500)

```

Then make and run migrations and you are ready to use django-classifier:

```

python manage.py makemigrations
python manage.py migrate

```

1.2.4 Add some data to classifier models

Lets add some data to ContactClassifier and ContactClassifierLabel:

```

contact_classifier1 = ContactClassifier.objects.create(
    kind='phone',
    value_type=ContactClassifier.TYPES.STRING,
    value_validator=r'^\+\d{12}$',
    only_one_required=False,
)
contact_classifier1.labels.create(label='Mobile')
contact_classifier1.labels.create(label='Work')
contact_classifier1.labels.create(label='Home')

contact_classifier2 = ContactClassifier.objects.create(
    kind='im',
    value_type=ContactClassifier.TYPES.STRING,
    value_validator=None,
    only_one_required=False,
)
contact_classifier2.labels.create(label='Skype')
contact_classifier2.labels.create(label='Jabber')

```

1.2.5 Create form for validation

To validate values based on classifier record, for this django-classifier has *ClassifierFormMixin*:

```

from django import forms
from classifier.forms import ClassifierFormMixin
from .models import Contact

class ContactForm(ClassifierFormMixin, forms.ModelForm):
    CLASSIFIER_VALUE_FIELD = 'value'

    class Meta:
        model = Contact
        fields = ('user', 'kind', 'value', )

```

You have to specify *CLASSIFIER_VALUE_FIELD* attribute to identify name of value field to attach validation based on classifier record.

1.2.6 Playing with formset

`classifier` provide own `FormSet` class `ClassifierFormSet` that will add extra forms for mandatory records and validate if all of them are filled in:

```
from django.contrib.auth import get_user_model
from django.forms import modelformset_factory
from classifier.formsets import ClassifierFormSet
from .forms import UserForm, ContactForm
from .models import Contact

ContactFormSet = modelformset_factory(
    Contact,
    formset=ClassifierFormSet,
    form=ContactForm
)

user = get_user_model().objects.create('login', 'password')
contact_formset = ContactFormSet(queryset=user.contacts.all())

print(len(contact_formset.forms))
print(contact_formset.forms[0].initial)
```

For now any of classifier records are not marked as required and formset has only one blank forms as default in Django.

But if you will mark both classifiers as `only_one_required` you will have two forms with prepopulated labels (*first available label*):

```
ContactClassifier.objects.all().update(only_one_required=True)

contact_formset = ContactFormSet(queryset=user.contacts.all())
print(len(contact_formset.forms))
print(contact_formset.forms[0].initial)
print(contact_formset.forms[1].initial)
```

If you will mark all labels as `required` then you will have 5 forms by default and all of them will be required:

```
ContactClassifier.objects.all().update(only_one_required=False)
ContactClassifierLabel.objects.all().update(required=True)

contact_formset = ContactFormSet(queryset=user.contacts.all())
print(len(contact_formset.forms))
```

1.3 classifier package

1.3.1 classifier.models

ClassifierAbstract

class `classifier.models.ClassifierAbstract` (*args, **kwargs)

Base class to create classifier models. Will provide base data and functions like validation and `to_python` (convert from string to real type).

In simplest case should be created model just inherited from this abstract model without extra code.

`kind` - custom identifier for classifier type (like: phone) `value_type` - expected type of value (like: string)
`value_validator` - regex to validate entered value (like: `+d{12}`) `only_one_required` - checkmark to make one on available labels required

Supported types: int, float, string, boolean, date, datetime.

Labels with kind give possibility to create one type of record with different names, like kind is *phone* and available labels are “Mobile”, “Home”, “Work” etc.

kind

custom identifier for classifier type (like: phone)

value_type

expected type of value (like: string)

value_validator

regex to validate entered value (like: `+d{12}`)

only_one_required

checkmark to make one on available labels required

to_python (*value*)

run convertor from string to type in `value_type` field

ClassifierLabelAbstract

class `classifier.models.ClassifierLabelAbstract` (**args, **kwargs*)

Base model class to define several human readable names for each classifier kind.

label

human readable label for data

required

checkmark to make label required

get_classifier_instance ()

Returns instance of related classifier

classmethod get_classifier_related_field ()

Returns field related to model inherited from ClassifierAbstract.

Raises `ClassifierModelNotFound` – if related field wasn’t found

Caution: not field name

classmethod get_classifier_model ()

Returns related model inherited from ClassifierAbstract

1.3.2 classifier.formsets

ClassifierFormSet

class `classifier.formsets.ClassifierFormSet` (**args, **kwargs*)

add_required_to_extra()

Method create extra forms for required records from classifier with selected needed kinds by default.

classifier_label_model

Property return model inherited from *ClassifierLabelAbstract* and used for one of field in model for this formset.

Returns model inherited from *ClassifierLabelAbstract*

Raises **ClassifierLabelModelNotFound** – field can not be found

classifier_label_related_fieldname

Return name of field related to model inherited from *ClassifierLabelAbstract*.

validate_required()

Validate if all required records are filled in

Raises **django.core.exceptions.ValidationError** – if one or mode records are absent

1.3.3 classifier.forms

ClassifierFormMixin

class `classifier.forms.ClassifierFormMixin(*args, **kwargs)`

Formset form mixin to enable validation for value connected to classifier.

CLASSIFIER_VALUE_FIELD = None

Name of field for value used in relation with classifier

classifier_label_fieldname

Returns Return name of field that is relation to end model inherited from *ClassifierLabelAbstract*

Raises **ClassifierLabelModelNotFound** – if field can not be found

classifier_label_model

Returns end model inherited from *ClassifierLabelAbstract* used in current form

Raises **ClassifierLabelModelNotFound** – if related field wasn't found

setup_value_validators()

Attach validator for value field specified in *CLASSIFIER_VALUE_FIELD*

Raises **NoValueFieldNameSpecified** – if *CLASSIFIER_VALUE_FIELD* is blank

validate_value_field()

Validate value based on classifier record.

Will be attached to right field by call *setup_value_validators()* in *__init__()*

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