django-authority Documentation

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The django-authority team

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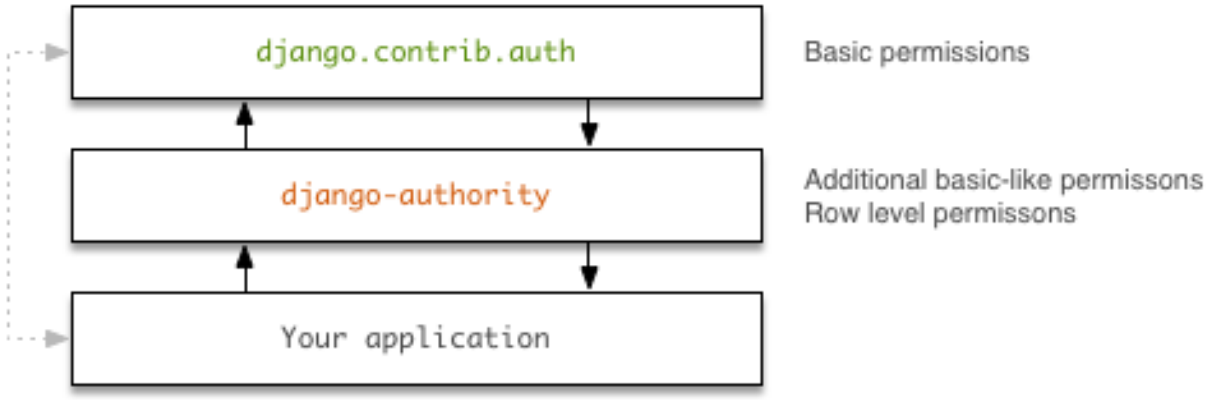
Contents

django-authority is a powerful layer between Django's basic permission system (provided through `django.contrib.auth`) and your application:



This application provides three abilities:

1. It gives you the ability to add permissions like Django's generic permissions to any kind of model without having to add them to the model's Meta class.
2. It provides a very simple way to create per-object-permissions. You might be more familiar with the term *row level permissions*.
3. It wraps Django's generic permissions so you can use the same syntax as for the options above. But note that django-authority does not add any voodoo-code to Django's `contrib.auth` system, it keeps your existing permission system intact!

django-authority uses a cache that is stored on the user object to help improve performance. However, if the `Permission` table changes the cache will need to be invalidated. More information about this can be found in the tips and tricks section.

Warning: We have just started with the documentation and it's far from being perfect. If you find glitches, errors or just have feedback, please contact the team: *Support*.

CHAPTER 1

Documentation

Note: The create-permission topics are based on each other. If you are new to django-authority we encourage to read from top to bottom.

Installation topics:

1.1 Installation

The installation of django-authority is easy. Whether you want to use the latest stable or development version, you have the following options.

1.1.1 The latest stable version

The latest, stable version is always available via the *Python package index_* (PyPI). You can download the latest version on the site but most users would prefer either `pip` or `easy_install`:

```
pip install django-authority

# .. or with easy_install:

easy_install django-authority
```

1.1.2 Development version

The latest development version is located on it's Github account. You can checkout the package using the Git scm:

```
git clone https://github.com/jazzband/django-authority
```

Then install it manually:

```
cd django-authority
python setup.py install
```

Warning: The development version is not fully tested and may contain bugs, so we prefer to use the latest package from pypi.

1.2 Configuration

1.2.1 settings.py

To enable django-authority you just need to add the package to your `INSTALLED_APPS` setting within your `settings.py`:

```
# settings.py
INSTALLED_APPS = (
    ...
    'authority',
)
```

Make sure your `settings.py` contains the following settings to enable the context processors:

```
TEMPLATE_CONTEXT_PROCESSORS = (
    'django.core.context_processors.auth',
    'django.core.context_processors.debug',
    'django.core.context_processors.i18n',
    'django.core.context_processors.media',
    'django.core.context_processors.request',
)
```

django-authority defaults to using a smart cache when checking permissions. This can be disabled by adding the following line to `settings.py`:

```
AUTHORITY_USE_SMART_CACHE = False
```

1.2.2 urls.py

You also have to modify your root URLConf (e.g. `urls.py`) to include the app's URL configuration and automatically discover all the permission classes you defined:

```
from django.contrib import admin
import authority

admin.autodiscover()
authority.autodiscover()

# ...

urlpatterns += patterns('',
    (r'^authority/', include('authority.urls')),
)
```

If you're using Django 1.1 this will automatically add a site-wide action to the admin site which can be removed as shown here: *Handling permissions using Django's admin interface*.

That's all (for now).

Create and check permissions:

1.3 Create a basic permission

1.3.1 Where to store permissions?

First of all: All following permission classes should be placed in a file called `permissions.py` in your application. For the *why* please have a look on *How permissions are discovered*.

1.3.2 Basic permissions

Let's start with an example:

```
import authority
from authority import permissions
from django.contrib.flatpages.models import FlatPage

class FlatpagePermission(permissions.BasePermission):
    label = 'flatpage_permission'

authority.register(FlatPage, FlatpagePermission)
```

Let's have a look at the code above. First of, if you want to create a new permission you have to subclass it from the BasePermission class:

```
from authority import permissions
class FlatpagePermission(permissions.BasePermission):
    # ...
```

Next, you need to name this permission using the `label` attribute:

```
class FlatpagePermission(permissions.BasePermission):
    label = 'flatpage_permission'
```

And finally you need to register the permission with the pool of all other permissions:

```
authority.register(FlatPage, FlatpagePermission)
```

The syntax of this is simple:

```
authority.register(<model>, <permission_class>)
```

While this is not much code, you already wrapped Django's basic permissions (add_flatpage, change_flatpage, delete_flatpage) for the model `FlatPage` and you are ready to use it within your templates or code:

Note: See Django's basic permissions how Django creates this permissions for you.

1.3.3 Example permission checks

This section shows you how to check for Django's basic permissions with django-authority.

In your python code

```
def my_view(request):
    check = FlatPagePermission(request.user)
    if check.change_flatpage():
        print "Yay, you can change a flatpage!"
```

Using the view decorator

```
from authority.decorators import permission_required_or_403

@permission_required_or_403('flatpage_permission.change_flatpage')
def my_view(request):
    # ...
```

See *Check permissions using the decorator* how the decorator works in detail.

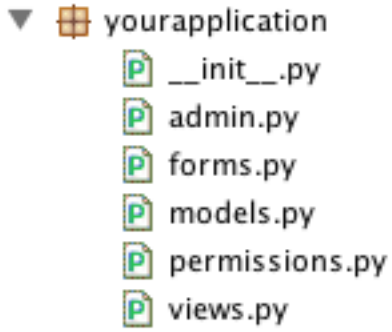
In your templates

```
{% ifhasperm "flatpage_permission.change_flatpage" request.user %}
    Yay, you can change a flatpage!
{% else %}
    Nope, sorry. You aren't allowed to change a flatpage.
{% endifhasperm %}
```

See *Check permissions in templates* how the templatetag works in detail.

1.3.4 How permissions are discovered

On first runtime of your Django project `authority.autodiscover()` will load all `permissions.py` files that are in your `settings.INSTALLED_APPS` applications. See *Configuration* how to set up `autodiscover`.



We encourage you to place your permission classes in a file called `permissions.py` inside your application directories. This will not only keep your application files clean, but it will also load every permission class at runtime when used with `authority.autodiscover()`.

If you really want, you can place these permission-classes in other files that are loaded at runtime. `__init__.py` or `models.py` are such files.

1.4 Create a per-object permission

django-authority provides a super simple but nifty feature called *per-object permission*. A description would be:

```
Attach a <codename> to an object
Attach a <codename> to an user

If the user has <codename> and the object has <codename> then do-something,
otherwise do-something-else.
```

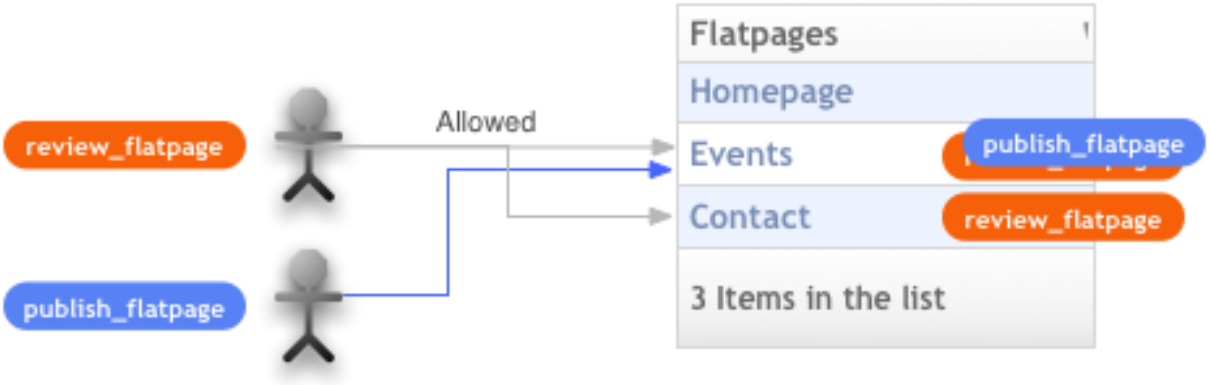
This might sound strange but let's have a closer look on this pattern. In terms of users and flatpages a visual example would be:

The user is allowed to review the flatpage "Events".

You are not limited to a 1:1 relation, you can add this `codename` to multiple objects:

The user is allowed to review the flatpages "Events" and "Contact".

And you can do this with any objects in any direction:



The user is allowed to review the flatpages "Events" and "Contact". Another user is allowed to publish the flatpage "Events".

1.4.1 Create per-object permissions

Creating per-object permissions is super simple. See this piece of permission class code:

```
class FlatPagePermission(BasePermission):
    label = 'flatpage_permission'
    checks = ('review',)

authority.register(FlatPage, FlatPagePermission)
```

This permission class is similar to the one we already created in *Create a basic permission* but we added the line:

```
checks = ('review',)
```

This tells the permission class that it has a permission check (or `codename`) `review`. Under the hood this check gets translated to `review_flatpage` (`review_<modelname>`).

Important: Be sure that you have understand that we have not written any line of code yet. We just added the `codename` to the checks attribute.

1.4.2 Attach per-object permissions to objects

Please see *Handling permissions using Django's admin interface* for this.

1.4.3 Check per-object permissions

As we noted above, we have not written any permission comparing code yet. This is your work. In theory the permission lookup for per-object permissions is:

```
if <theuser> has <codename> and <object> has <codename>:
    return True
else:
    return False
```

Important: The syntax is similiar to the permission checks we've already seen in *Create a basic permission* for the basic permissions but now we have to pass each function a model instance we want to check!

In your python code

```
from myapp.permissions import FlatPagePermission
def my_view(request):
    check = FlatPagePermission(request.user)
    flatpage_object = Flatpage.objects.get(url='/homepage/')
    if check.review_flatpage(flatpage_object):
        print "Yay, you can change *this* flatpage!"
```

Using the view decorator

```
from django.contrib.auth import Flatpage
from authority.decorators import permission_required_or_403

@permission_required_or_403('flatpage_permission.review_flatpage',
                            (Flatpage, 'url__iexact', 'url')) # The flatpage_object
def my_view(request, url):
    # ...
```

See *Check permissions using the decorator* how the decorator works in detail.

In your templates

```
{% ifhasperm "flatpage_permission.review_flatpage" request.user flatpage_object %}
    Yay, you can change *this* flatpage!
{% else %}
    Nope, sorry. You aren't allowed to change *this* flatpage.
{% endifhasperm %}
```

See *Check permissions in templates* how the template tag works in detail.

1.5 Create a custom permission

django-authority allows you to define powerful custom permission. Let's start again with an example code:

```
import authority
from authority import permissions
from django.contrib.flatpages.models import Flatpage

class FlatpagePermission(permissions.BasePermission):
    label = 'flatpage_permission'

authority.register(Flatpage, FlatpagePermission)
```

A custom permission is a simple method of the permission class:

```
import authority
from authority import permissions
from django.contrib.flatpages.models import Flatpage

class FlatpagePermission(permissions.BasePermission):
    label = 'flatpage_permission'
    checks = ('my_custom_check',)

    def my_custom_check(self, flatpage):
        if(flatpage.url == '/about/'):
            return True
        return False

authority.register(Flatpage, FlatpagePermission)
```

Note that we first added the name of your custom permission to the `checks` attribute, like in *Create a per-object permission*:

```
checks = ('my_custom_check',)
```

The permission itself is a simple function that accepts an arbitrary number of arguments. A permission class should always return a boolean whether the permission is True or False:

```
def my_custom_check(self, flatpage):
    if flatpage.url == '/about/':
        return True
    return False
```

Warning: Although it's possible to return other values than `True`, for example an object which also evluates to True, we highly advise to only return booleans.

Custom permissions are not necessary related to a model, you can define simpler permissions too. For example, return True if it's between 10 and 12 o'clock:

```
def datetime_check(self):
    hour = int(datetime.datetime.now().strftime("%H"))
    if hour >= 10 and hour <= 12:
        return True
    return False
```

But most often you want to combine such permissions checks. The next example would allow an user to have permission to edit a flatpage only between 8 and 12 o'clock in the morning:

```
def morning_flatpage_check(self, flatpage):
    hour = int(datetime.datetime.now().strftime("%H"))
    if hour >= 8 and hour <= 12 and flatpage.url == '/about/':
        return True
    return False
```

1.5.1 Check custom permissions

The permission check is similar to *Create a basic permission* and *Create a per-object permission*.

Warning: Although *per-object* permissions are translated to `<permname>_<modelname>` this is not the case for custom permissions! A custom permission `my_custom_check` remains `my_custom_check`.

In your python code

```
from myapp.permissions import FlatPagePermission
def my_view(request):
    check = FlatPagePermission(request.user)
    flatpage_object = Flatpage.objects.get(url='/homepage/')
    if check.my_custom_check(flatpage=flatpage_object):
        print "Yay, you can change *this* flatpage!"
```

Using the view decorator

```
from django.contrib.auth import Flatpage
from authority.decorators import permission_required_or_403

@permission_required_or_403('flatpage_permission.my_custom_check',
                            (Flatpage, 'url__iexact', 'url')) # The flatpage_object
def my_view(request, url):
    # ...
```

See *Check permissions using the decorator* how the decorator works in detail.

In your templates

```
{% ifhasperm "flatpage_permission.my_custom_check" request.user flatpage_object %}
    Yay, you can change *this* flatpage!
{% else %}
    Nope, sorry. You aren't allowed to change *this* flatpage.
{% endifhasperm %}
```

See *Check permissions in templates* how the templatetag works in detail.

Permission checks in detail

1.6 Check permissions in python code

to be written

1.7 Check permissions using the decorator

Note: A decorator is not the ultimate painkiller, if you need to deal with complex permission handling, take a look at *Check permissions in python code*.

1.7.1 The decorator syntax

Lets start with an example permission:

```
class FlatpagePermission(permissions.BasePermission):
    label = 'flatpage_permission'
    checks = ('can_do_foo',)

    def can_do_foo(self):
        # ...

authority.register(Campaign, FlatpagePermission)
```

A decorator for such a simple view would look like:

```
from authority.decorators import permission_required

@permission_required('flatpage_permission.can_do_foo')
def my_view(request):
    # ...
```

The decorator automatically takes the user object from the view's arguments and calls `can_do_foo`. If this function returns `True`, the view gets called, otherwise the user will be redirected to the login page.

Passing arguments to the permission

You can pass any arguments to the permission function. Assumed our permission function looks like this:

```
def can_do_foo(self, view_arg1, view_arg2=None):
    # ...
```

Our decorator can *grab* the arguments from the view and passes it to the permission function. Just take the arguments from the view and place them as a string on the decorator:

```
@permission_required('flatpage_permission.can_do_foo', 'arg1', 'arg2')
def my_view(required, arg1, arg2):
    # ...
```

What happens under the hood?:

```
# Assumed the view gets called like this
my_view(request, 'bla', 'blubb')

# At the end, the decorator would been called like this
can_do_foo('bla', 'blubb')
```

Passing queryset lookups to the permission

You can pass queryset lookups instead of an argument. This might look a bit strange first, but it can save you a ton of code. Instead of passing a simple string to the permission function, declare a tuple of the syntax:

```
(<model>, '<field_lookup>', 'view_arg')
# .. or ..
('<appname>.<modelname>', '<field_lookup>', 'view_arg')
```

Here is an example:

```
# permission.py
def can_do_foo(self, flatpage_instance=None):
    # ...

# views.py
from django.contrib.flatpages.models import Flatpage
@permission_required('flatpage_permission.can_do_foo', (Flatpage, 'url__iexact', 'url
↪'))
def flatpage(required, url):
    # ...
```

What happens under the hood? It's nearly the same as the *simple* decorator would do, except that the argument is fetched with a `get_object_or_404` statement. So this is the same:

```
(Flatpage, 'url__iexact', 'url')
get_object_or_404(Flatpage, 'url__iexact'='/about/')
```

Note: For all available field lookups, please refer to the Django documentation: Field lookups

1.7.2 Contributed decorators

django-authority contributes two decorators, the syntax of both is the same as described above:

- permission_required
- permission_required_or_403

In a nutshell, `permission_required_or_403` does the same as `permission_required` except it returns a Http403 Response instead of redirecting to the login page.

Just like Django's `500.html` and `404.html` you are able to override the template used in the permission denied page. Simply create a `403.html` template in your template directory. It will get the path of the denied page passed as the context variable `request_path`.

1.8 Check permissions in templates

django-authority provides a couple of template tags which allows you to get permissions for a user (and a related object).

1.8.1 ifhasperm

This function checks whether a permission is True or False for a user and (optional) a related object.

Syntax:

```
{% ifhasperm [permission_label].[check_name] [user] [*objs] %}
    lalala
{% else %}
    meh
{% endifhasperm %}
```

Example:

```
{% ifhasperm "poll_permission.change_poll" request.user %}
    lalala
{% else %}
    meh
{% endifhasperm %}
```

1.8.2 get_permissions

Retrieves all permissions associated with the given obj and user and assigns the result to a context variable.

Syntax and example:

```
{% get_permissions obj %}
{% for perm in permissions %}
    {{ perm }}
{% endfor %}

{% get_permissions obj as "my_permissions" %}
{% get_permissions obj for request.user as "my_permissions" %}
```

1.8.3 get_permission

Performs a permission check with the given signature, user and objects and assigns the result to a context variable.

Syntax:

```
{% get_permission [permission_label].[check_name] for [user] and [objs] as [varname]
↪%}
```

Example:

```
{% get_permission "poll_permission.change_poll" for request.user and poll as "is_
↪allowed" %}
{% get_permission "poll_permission.change_poll" for request.user and poll,second_poll␣
↪as "is_allowed" %}

{% if is_allowed %}
    I've got ze power to change ze pollllllzzz. Muahahaa.
{% else %}
    Meh. No power for meeeee.
{% endif %}
```

Permission assigning and handling

1.9 Handling permissions in python code

to be written

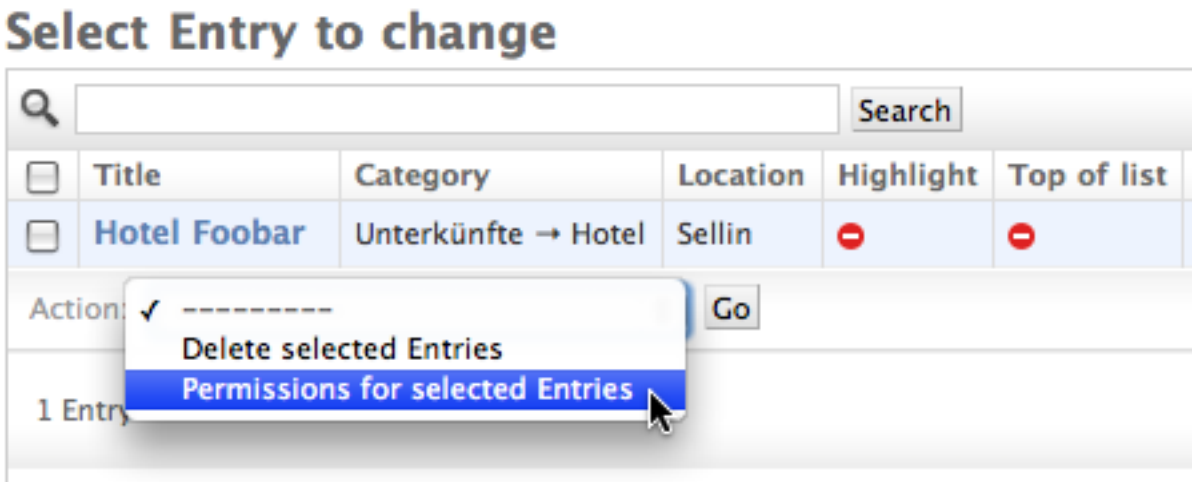
1.10 Handling permissions using Django's admin interface

to be written

Note: Django admin actions are available in Django 1.1 or later.

1.10.1 Apply permissions using Django's admin actions

This feature is limited to superusers and users with either the "Can change permission" (`change_permission`) or the "Can change foreign permission" (`change_foreign_permission`) permission.



Disable the admin action site-wide

To disable the action site-wide, place this line somewhere in your code. One of your app `admin.py` files might be a good place:

```
admin.site.disable_action('edit_permissions')
```

Further informations are available in Django's documentation: Disabling a site-wide action.

Disable the admin action per ModelAdmin instance

In case you want to disable the permission action per ModelAdmin, delete this action within the `get_actions` method. Here is an example:

```
class EntryAdmin(admin.ModelAdmin):

    def get_actions(self, request):
        actions = super(EntryAdmin, self).get_actions(request)
        del actions['edit_permissions']
        return actions
```

Further informations are available in Django's documentation: Conditionally enabling or disabling actions.

1.11 Handling permissions using templates

to be written

CHAPTER 2

Other pages

- search
- genindex

2.1 Hints, tips and tricks

Within a permission class, you can refer to the user and group using self:

```
class CampaignPermission(permissions.BasePermission):
    label = 'campaign_permission'
    checks = ('do_foo',)

    def do_foo(self, campaign=None):
        print self.user
        print self.group
        # ...
```

You can unregister permission classes and re-register them:

```
authority.unregister(Campaign)
authority.register(Campaign, CampaignPermission)
```

Within a permission class, you can refer to Django's basic permissions:

```
class FlagpagePermisson(permissions.BasePermission):
    label = 'flatpage_permission'
    checks = ('do_foo',)

    def do_foo(self, campaign=None):
        if foo and self.change_flatpage():
            # ...

authority.register(Flatpage, FlagpagePermisson)
```

If the `Permission` table changes during the lifespan of a django-authority permission instance and the smart cache is being used, you will need to call invalidate_permissions_cache in order to see that changes:

```
class UserPermission(permission.BasePermission):
    label = 'user_permission'
    checks = ('do_foo',)
authority.register(User, UserPermission)

user_permission = UserPermission(user)

# can_foo is False here since the permission has not yet been added.
can_foo = user_permission.has_user_perms('foo', user)

Permission.objects.create(
    content_type=Permission.objects.get_content_type(User),
    object_id=user.pk,
    codename='foo',
    user=user,
    approved=True,
)

# can_foo is still False because the permission cache has not been
invalidated yet.
can_foo = user_permission.has_user_perms('foo', user)

user_permission.invalidate_permissions_cache()

# can_foo is now True
can_foo = user_permission.has_user_perms('foo', user)
```

This is particularly useful if you are using the permission instances during a request, where it is unlikely that the state of the `Permission` table will change.

Although the previous example was only passing in a `user` into the permission, smart caching is used when getting permissions in a `group` as well.

2.2 Support

We've created a google group for django-authority. If you have questions or suggestions, please drop us a note.

For more specific issues and bug reports please use the issue tracker on django-authority's Github page.

> **Warning:** This document is for internal use only.

2.3 Documentation Guildlines

2.3.1 Headline scheme

```
==================================
First level (equals top and bottom)
==================================
```

```
Second Level (equals bottom)
============================

Third level (dashes botton)
---------------------------

Fourth level (drunken dashes bottom)
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
```

Please try to use not more than 4 levels of headlines.

2.3.2 Overall salutation guidelines

Use the *We* and *you*:

```
We think that you should send us a bottle of your local beer.
```

2.3.3 Some thoughts

- Many internal links are good
- Text should not be wider than 80 characters
- Two pages are better than one ultra-long page

Index