
dj-rest-auth Documentation

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Note: dj-rest-auth version 1.0.0 now uses Django Simple JWT.

1.1 Introduction

Since the introduction of `django-rest-framework`, Django apps have been able to serve up app-level REST API endpoints. As a result, we saw a lot of instances where developers implemented their own REST registration API endpoints here and there, snippets, and so on. We aim to solve this demand by providing `dj-rest-auth`, a set of REST API endpoints to handle User Registration and Authentication tasks. By having these API endpoints, your client apps such as AngularJS, iOS, Android, and others can communicate to your Django backend site independently via REST APIs for User Management. Of course, we'll add more API endpoints as we see the demand.

1.1.1 Features

- User Registration with activation
- Login/Logout
- Retrieve/Update the Django User model
- Password change
- Password reset via e-mail
- Social Media authentication

1.1.2 Apps structure

- `dj_rest_auth` has basic auth functionality like login, logout, password reset and password change
- `dj_rest_auth.registration` has logic related with registration and social media authentication

1.1.3 Demo projects

- You can also check our *Demo Project* which is using jQuery on frontend.
- There is also a React demo project based on Create-React-App in demo/react-spa/

1.2 Installation

1. Install package:

```
pip install dj-rest-auth
```

2. Add `dj_rest_auth` app to `INSTALLED_APPS` in your django settings.py:

```
INSTALLED_APPS = (  
    ...,  
    'rest_framework',  
    'rest_framework.authtoken',  
    ...,  
    'dj_rest_auth'  
)
```

Note: This project depends on `django-rest-framework` library, so install it if you haven't done yet. Make sure also you have installed `rest_framework` and `rest_framework.authtoken` apps

3. Add `dj_rest_auth` urls:

```
urlpatterns = [  
    ...,  
    path('dj-rest-auth/', include('dj_rest_auth.urls'))  
]
```

4. Migrate your database

```
python manage.py migrate
```

You're good to go now!

1.2.1 Registration (optional)

1. If you want to enable standard registration process you will need to install `django-allauth` by using `pip install 'dj-rest-auth[with_social]'`.
2. Add `django.contrib.sites`, `allauth`, `allauth.account`, `allauth.socialaccount` and `dj_rest_auth.registration` apps to `INSTALLED_APPS` in your django settings.py:
3. Add `SITE_ID = 1` to your django settings.py

```
INSTALLED_APPS = (  
    ...,  
    'django.contrib.sites',  
    'allauth',  
    'allauth.account',  
    'allauth.socialaccount',  
    'dj_rest_auth',  
    'dj_rest_auth.registration'
```

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```
'allauth.socialaccount',
'dj_rest_auth.registration',
)

SITE_ID = 1
```

3. Add dj_rest_auth.registration urls:

```
urlpatterns = [
    ...,
    path('dj-rest-auth/', include('dj_rest_auth.urls')),
    path('dj-rest-auth/registration/', include('dj_rest_auth.registration.urls'))
]
```

1.2.2 Social Authentication (optional)

Using django-allauth, dj-rest-auth provides helpful class for creating social media authentication view.

Note: Points 1 and 2 are related to django-allauth configuration, so if you have already configured social authentication, then please go to step 3. See django-allauth documentation for more details.

1. Add `allauth.socialaccount` and `allauth.socialaccount.providers.facebook` or `allauth.socialaccount.providers.twitter` apps to `INSTALLED_APPS` in your django settings.py:

```
INSTALLED_APPS = (
    ...,
    'rest_framework',
    'rest_framework.authtoken',
    'dj_rest_auth'
    ...,
    'django.contrib.sites',
    'allauth',
    'allauth.account',
    'dj_rest_auth.registration',
    ...,
    'allauth.socialaccount',
    'allauth.socialaccount.providers.facebook',
    'allauth.socialaccount.providers.twitter',
)
```

2. Add Social Application in django admin panel

Facebook

3. Create new view as a subclass of `dj_rest_auth.registration.views.SocialLoginView` with `FacebookOAuth2Adapter` adapter as an attribute:

```
from allauth.socialaccount.providers.facebook.views import FacebookOAuth2Adapter
from dj_rest_auth.registration.views import SocialLoginView
```

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```
class FacebookLogin(SocialLoginView):
    adapter_class = FacebookOAuth2Adapter
```

4. Create url for FacebookLogin view:

```
urlpatterns += [
    ...,
    path('dj-rest-auth/facebook/', FacebookLogin.as_view(), name='fb_login')
]
```

Twitter

If you are using Twitter for your social authentication, it is a bit different since Twitter uses OAuth 1.0.

3. Create new view as a subclass of `dj_rest_auth.registration.views.SocialLoginView` with `TwitterOAuthAdapter` adapter and `TwitterLoginSerializer` as an attribute:

```
from allauth.socialaccount.providers.twitter.views import TwitterOAuthAdapter
from dj_rest_auth.registration.views import SocialLoginView
from dj_rest_auth.social_serializers import TwitterLoginSerializer

class TwitterLogin(SocialLoginView):
    serializer_class = TwitterLoginSerializer
    adapter_class = TwitterOAuthAdapter
```

4. Create url for TwitterLogin view:

```
urlpatterns += [
    ...,
    path('dj-rest-auth/twitter/', TwitterLogin.as_view(), name='twitter_login')
]
```

Note: Starting from v0.21.0, django-allauth has dropped support for context processors. Check out <http://django-allauth.readthedocs.org/en/latest/changelog.html#from-0-21-0> for more details.

GitHub

If you are using GitHub for your social authentication, it uses code and not AccessToken directly.

3. Create new view as a subclass of `dj_rest_auth.views.SocialLoginView` with `GitHubOAuth2Adapter` adapter, an `OAuth2Client` and a `callback_url` as attributes:

```
from allauth.socialaccount.providers.github.views import GitHubOAuth2Adapter
from allauth.socialaccount.providers.oauth2.client import OAuth2Client
from dj_rest_auth.registration.views import SocialLoginView

class GitHubLogin(SocialLoginView):
    adapter_class = GitHubOAuth2Adapter
    callback_url = CALLBACK_URL_YOU_SET_ON_GITHUB
    client_class = OAuth2Client
```

4. Create url for GitHubLogin view:

```
urlpatterns += [
    ...,
    path('dj-rest-auth/github/', GitHubLogin.as_view(), name='github_login')
]
```

Google

If you are using Google for your social authentication, you can choose Authorization Code Grant or Implicit Grant (deprecated). Serializer of dj-rest-auth accepts both code and token

1. Add `allauth.socialaccount` and `allauth.socialaccount.providers.google` apps to `INSTALLED_APPS` in your django settings.py:

```
INSTALLED_APPS = (
    ...,
    'rest_framework',
    'rest_framework.authtoken',
    'dj_rest_auth'

    ...,
    'django.contrib.sites',
    'allauth',
    'allauth.account',
    'dj_rest_auth.registration',
    ...,
    'allauth.socialaccount',
    'allauth.socialaccount.providers.google',
)
```

3. Create new view as a subclass of `dj_rest_auth.views.SocialLoginView` with `GoogleOAuth2Adapter` adapter, an `OAuth2Client` and a `callback_url` as attributes:

```
from allauth.socialaccount.providers.google.views import GoogleOAuth2Adapter
from allauth.socialaccount.providers.oauth2.client import OAuth2Client
from dj_rest_auth.registration.views import SocialLoginView

class GoogleLogin(SocialLoginView): # if you want to use Authorization Code Grant,
    ↪ use this
    adapter_class = GoogleOAuth2Adapter
    callback_url = CALLBACK_URL_YOU_SET_ON_GOOGLE
    client_class = OAuth2Client

class GoogleLogin(SocialLoginView): # if you want to use Implicit Grant, use this
    adapter_class = GoogleOAuth2Adapter
```

4. Create url for GoogleLogin view:

```
urlpatterns += [
    ...,
    path('dj-rest-auth/google/', GoogleLogin.as_view(), name='google_login')
]
```

5. Retrive code (or token) By accessing Google's endpoint, you can get code or token

If you're using Authorization Code Grant, you can get code from following URL

`https://accounts.google.com/o/oauth2/v2/auth?redirect_uri=<CALLBACK_URL_YOU_SET_ON_GOOGLE>
CLIENT_ID>&scope=openid%20email%20profile&access_type=offline`

If you're using Implicit Grant, you can get token from following URL

`https://accounts.google.com/o/oauth2/v2/auth?redirect_uri=<CALLBACK_URL_YOU_SET_ON_GOOGLE>
CLIENT_ID>&scope=openid%20email%20profile`

6. POST code or token to specified URL(/dj-rest-auth/google/)

Additional Social Connect Views

If you want to allow connecting existing accounts in addition to login, you can use connect views:

```
from allauth.socialaccount.providers.facebook.views import FacebookOAuth2Adapter
from allauth.socialaccount.providers.github.views import GitHubOAuth2Adapter
from allauth.socialaccount.providers.twitter.views import TwitterOAuthAdapter
from allauth.socialaccount.providers.oauth2.client import OAuth2Client
from dj_rest_auth.registration.views import SocialConnectView
from dj_rest_auth.social_serializers import TwitterConnectSerializer

class FacebookConnect(SocialConnectView):
    adapter_class = FacebookOAuth2Adapter

class TwitterConnect(SocialConnectView):
    serializer_class = TwitterConnectSerializer
    adapter_class = TwitterOAuthAdapter

class GithubConnect(SocialConnectView):
    adapter_class = GitHubOAuth2Adapter
    callback_url = CALLBACK_URL_YOU_SET_ON_GITHUB
    client_class = OAuth2Client
```

In `urls.py`:

```
urlpatterns += [
    ...,
    path('dj-rest-auth/facebook/connect/', FacebookConnect.as_view(), name='fb_connect'),
    path('dj-rest-auth/twitter/connect/', TwitterConnect.as_view(), name='twitter_
connect'),
    path('dj-rest-auth/github/connect/', GithubConnect.as_view(), name='github_connect'),
]
```

You can also use the following views to check all social accounts attached to the current authenticated user and disconnect selected social accounts:

```
from dj_rest_auth.registration.views import (
    SocialAccountListView, SocialAccountDisconnectView
)

urlpatterns += [
    ...,
    path(
        'socialaccounts/',
        SocialAccountListView.as_view(),
        name='social_account_list'
```

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```

    ),
    path(
        'socialaccounts/<int:pk>/disconnect/',
        SocialAccountDisconnectView.as_view(),
        name='social_account_disconnect'
    )
]

```

1.2.3 JSON Web Token (JWT) Support (optional)

By default `dj-rest-auth` uses Django's Token-based authentication. If you want to use JWT authentication, follow these steps:

1. Install `django-rest-framework-simplejwt`

- `django-rest-framework-simplejwt` is currently the only supported JWT library.

2. Add a `simple_jwt` auth configuration to the list of authentication classes.

```

REST_FRAMEWORK = {
    ...
    'DEFAULT_AUTHENTICATION_CLASSES': (
        ...
        'dj_rest_auth.jwt_auth.JWTCookieAuthentication',
    )
    ...
}

```

3. Add the following configuration value to your settings file to enable JWT authentication in `dj-rest-auth`.

```
REST_USE_JWT = True
```

4. Declare what you want the cookie key to be called. If you want to use the refresh token feature, also be sure to set that variable.

```

JWT_AUTH_COOKIE = 'my-app-auth'
JWT_AUTH_REFRESH_COOKIE = 'my-refresh-token'

```

This example value above will cause `dj-rest-auth` to return a *Set-Cookie* header that looks like this:

```

Set-Cookie: my-app-auth=xxxxxxxxxxxxxx; expires=Sat, 28 Mar 2020 18:59:00 GMT;
↳HttpOnly; Max-Age=300; Path=/

```

If `JWT_AUTH_REFRESH_COOKIE` is also set, it will also set a comparable cookie for that. `JWT_AUTH_COOKIE` is also used while authenticating each request against protected views.

1.3 API endpoints

1.3.1 Basic

- `/dj-rest-auth/login/` (POST)
 - username

- email
- password

Returns Token key

- /dj-rest-auth/logout/ (POST)

Note: `ACCOUNT_LOGOUT_ON_GET = True` to allow logout using GET - this is the exact same configuration from allauth. NOT recommended, see: <http://django-allauth.readthedocs.io/en/latest/views.html#logout>

- /dj-rest-auth/password/reset/ (POST)
 - email
- /dj-rest-auth/password/reset/confirm/ (POST)
 - uid
 - token
 - new_password1
 - new_password2

Note: uid and token are sent in email after calling /dj-rest-auth/password/reset/

- /dj-rest-auth/password/change/ (POST)
 - new_password1
 - new_password2
 - old_password

Note: `OLD_PASSWORD_FIELD_ENABLED = True` to use old_password.

Note: `LOGOUT_ON_PASSWORD_CHANGE = False` to keep the user logged in after password change

- /dj-rest-auth/user/ (GET, PUT, PATCH)
 - username
 - first_name
 - last_name

Returns pk, username, email, first_name, last_name
- /dj-rest-auth/token/verify/ (POST)
 - token

Returns an empty JSON object.

Note: `REST_USE_JWT = True` to use token/verify/ route.

Note: Takes a token and indicates if it is valid. This view provides no information about a token's fitness for a particular use. Will return a HTTP 200 OK in case of a valid token and HTTP 401 Unauthorized with `{"detail": "Token is invalid or expired", "code": "token_not_valid"}` in case of a invalid or expired token.

- `/dj-rest-auth/token/refresh/` (POST) ([see also](#))

- refresh

Returns access

Note: `REST_USE_JWT = True` to use token/refresh/ route.

Note: Takes a refresh type JSON web token and returns an access type JSON web token if the refresh token is valid. HTTP 401 Unauthorized with `{"detail": "Token is invalid or expired", "code": "token_not_valid"}` in case of a invalid or expired token.

1.3.2 Registration

- `/dj-rest-auth/registration/` (POST)

- username
 - password1
 - password2
 - email

- `/dj-rest-auth/registration/verify-email/` (POST)

- key

Note: If you set account email verification as mandatory, you have to add the `VerifyEmailView` with the used *name*. You need to import the view: `from dj_rest_auth.registration.views import VerifyEmailView`. Then add the url with the corresponding name: `path('dj-rest-auth/account-confirm-email/', VerifyEmailView.as_view(), name='account_email_verification_sent')` to the `urlpatterns` list.

- `/dj-rest-auth/registration/resend-email/` (POST)

- email

Resends the email verification

1.3.3 Social Media Authentication

Basing on example from installation section *Installation*

- /dj-rest-auth/facebook/ (POST)
 - access_token
 - code

Note: access_token OR code can be used as standalone arguments, see https://github.com/iMerica/dj-rest-auth/blob/master/dj_rest_auth/registration/views.py

- /dj-rest-auth/twitter/ (POST)
 - access_token
 - token_secret

1.4 Configuration

• REST_AUTH_SERIALIZERS

You can define your custom serializers for each endpoint without overriding urls and views by adding REST_AUTH_SERIALIZERS dictionary in your django settings. Possible key values:

- LOGIN_SERIALIZER - serializer class in dj_rest_auth.views.LoginView, default value dj_rest_auth.serializers.LoginSerializer
- TOKEN_SERIALIZER - response for successful authentication in dj_rest_auth.views.LoginView, default value dj_rest_auth.serializers.TokenSerializer
- JWT_SERIALIZER - (Using REST_USE_JWT=True) response for successful authentication in dj_rest_auth.views.LoginView, default value dj_rest_auth.serializers.JWTSerializer
- JWT_TOKEN_CLAIMS_SERIALIZER - A custom JWT Claim serializer. Default is rest_framework_simplejwt.serializers.TokenObtainPairSerializer
- USER_DETAILS_SERIALIZER - serializer class in dj_rest_auth.views.UserDetailsView, default value dj_rest_auth.serializers.UserDetailsSerializer
- PASSWORD_RESET_SERIALIZER - serializer class in dj_rest_auth.views.PasswordResetView, default value dj_rest_auth.serializers.PasswordResetSerializer
- PASSWORD_RESET_CONFIRM_SERIALIZER - serializer class in dj_rest_auth.views.PasswordResetConfirmView, default value dj_rest_auth.serializers.PasswordResetConfirmSerializer
- PASSWORD_CHANGE_SERIALIZER - serializer class in dj_rest_auth.views.PasswordChangeView, default value dj_rest_auth.serializers.PasswordChangeSerializer

Example configuration:


```
REST_AUTH_SERIALIZERS = {
    'LOGIN_SERIALIZER': 'path.to.custom.LoginSerializer',
    'TOKEN_SERIALIZER': 'path.to.custom.TokenSerializer',
    ...
}
```

• **REST_AUTH_REGISTER_SERIALIZERS**

You can define your custom serializers for registration endpoint. Possible key values:

- **REGISTER_SERIALIZER** - serializer class in `dj_rest_auth.registration.views.RegisterView`, default value `dj_rest_auth.registration.serializers.RegisterSerializer`

Note: The custom **REGISTER_SERIALIZER** must define a `def save(self, request)` method that returns a user model instance

- **REST_AUTH_REGISTER_PERMISSION_CLASSES** - A tuple contains paths of another permission classes you wish to be used in `RegisterView`, `AllowAny` is included by default.

Example :

```
REST_AUTH_REGISTER_PERMISSION_CLASSES = (
    'rest_framework.permissions.IsAuthenticated',
    'path.to.another.permission.class',
    ...
)
```

- **REST_AUTH_TOKEN_MODEL** - path to model class for tokens, default value `'rest_framework.authtoken.models.Token'` If set to `None` token authentication will be disabled. In this case at least one of **REST_SESSION_LOGIN** or **REST_USE_JWT** must be enabled.
- **REST_AUTH_TOKEN_CREATOR** - path to callable or callable for creating tokens, default value `dj_rest_auth.utils.default_create_token`.
- **REST_AUTH_PW_RESET_USE_SITES_DOMAIN** - if set to `True`, the domain in the password reset e-mail will be set to the domain you defined in `django.contrib.sites` module with `SITE_ID=1`
- **REST_SESSION_LOGIN** - Enable session login in Login API view (default: `True`)
- **REST_USE_JWT** - Enable JWT Authentication instead of Token/Session based. This is built on top of `django-rest-framework-simplejwt` <https://github.com/SimpleJWT/django-rest-framework-simplejwt>, which must also be installed. (default: `False`)
- **JWT_AUTH_COOKIE** - The cookie name/key.
- **JWT_AUTH_REFRESH_COOKIE** - The name/key of the refresh token. `None` when not set, which disables the refresh token.
- **JWT_AUTH_SECURE** - If you want the cookie to be only sent to the server when a request is made with the `https` scheme (default: `False`).
- **JWT_AUTH_HTTPONLY** - If you want to prevent client-side JavaScript from having access to the cookie (default: `True`).
- **JWT_AUTH_SAMESITE** - To tell the browser not to send this cookie when performing a cross-origin request (default: `'Lax'`). `SameSite` isn't supported by all browsers.
- **OLD_PASSWORD_FIELD_ENABLED** - set it to `True` if you want to have old password verification on password change endpoint (default: `False`)

- **LOGOUT_ON_PASSWORD_CHANGE** - set to False if you want to keep the current user logged in after a password change
- **JWT_AUTH_COOKIE_USE_CSRF** - Enables CSRF checks for only authenticated views when using the JWT cookie for auth. Does not effect a client's ability to authenticate using a JWT Bearer Auth header without a CSRF token.
- **JWT_AUTH_COOKIE_ENFORCE_CSRF_ON_UNAUTHENTICATED** - Enables CSRF checks for authenticated and unauthenticated views when using the JWT cookie for auth. It does not effect a client's ability to authenticate using a JWT Bearer Auth header without a CSRF token (though getting the JWT token in the first place without passing a CSRF token isnt possible).

1.5 Demo project

This demo project shows how you can potentially use dj-rest-auth app with jQuery on frontend. To run this locally follow the steps below.

```
cd /tmp
git clone https://github.com/iMerica/dj-rest-auth.git
cd dj-rest-auth/demo/
pip install -r requirements.pip
python manage.py migrate --settings=demo.settings --noinput
python manage.py runserver --settings=demo.settings
```

Now, go to `http://127.0.0.1:8000/` in your browser. There is also a Single Page Application (SPA) in React within the `demo/` directory. To run this do:

```
cd react-spa/
yarn # or npm install
yarn run start
```

Now, go to `https://localhost:3000` in your browser to view it.

1.6 FAQ

1. Why `account_confirm_email` url is defined but it is not usable?

In `/dj_rest_auth/registration/urls.py` we can find something like this:

```
url(r'^account-confirm-email/(?P<key>[-:\w]+)/$', TemplateView.as_view(),
    name='account_confirm_email'),
```

This url is used by django-allauth. Empty `TemplateView` is defined just to allow `reverse()` call inside app - when email with verification link is being sent.

You should override this view/url to handle it in your API client somehow and then, send post to `/verify-email/` endpoint with proper key. If you don't want to use API on that step, then just use `ConfirmEmailView` view from: django-allauth <https://github.com/pennersr/django-allauth/blob/master/allauth/account/views.py>

2. I get an error: Reverse for 'password_reset_confirm' not found.

You need to add `password_reset_confirm` url into your `urls.py` (at the top of any other included urls). Please check the `urls.py` module inside demo app example for more details.

3. How can I update `UserProfile` assigned to `User` model?

Assuming you already have UserProfile model defined like this

```
from django.db import models
from django.contrib.auth.models import User

class UserProfile(models.Model):
    user = models.OneToOneField(User, related_name='userprofile')
    # custom fields for user
    company_name = models.CharField(max_length=100)
```

To allow update user details within one request send to `dj_rest_auth.views.UserDetailsView` view, create serializer like this:

```
from rest_framework import serializers
from dj_rest_auth.serializers import UserDetailsSerializer

class UserProfileSerializer(serializers.ModelSerializer):
    class Meta:
        model = UserProfile
        fields = ('company_name',)

class UserSerializer(UserDetailsSerializer):

    profile = UserProfileSerializer(source="userprofile")

    class Meta(UserDetailsSerializer.Meta):
        fields = UserDetailsSerializer.Meta.fields + ('profile',)

    def update(self, instance, validated_data):
        userprofile_serializer = self.fields['profile']
        userprofile_instance = instance.userprofile
        userprofile_data = validated_data.pop('userprofile', {})

        # to access the 'company_name' field in here
        # company_name = userprofile_data.get('company_name')

        # update the userprofile fields
        userprofile_serializer.update(userprofile_instance, userprofile_
↵data)

        instance = super().update(instance, validated_data)
        return instance
```

And setup `USER_DETAILS_SERIALIZER` in django settings:

```
REST_AUTH_SERIALIZERS = {
    'USER_DETAILS_SERIALIZER': 'demo.serializers.UserSerializer'
}
```

1.7 Vulnerability Disclosure Policy

Please observe the standard best practices of responsible disclosure, especially considering that this is OSS. See OWASP's disclosure [cheat sheet](#).

Some basic rules:

- Keep it legal.

- Respect everyone's privacy.
- Contact the core maintainer(s) immediately if you discover a serious security vulnerability (imichael@pm.me for now).