
SEED Platform Documentation

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Contents

1	Getting Started	3
1.1	Development Setup	3
2	Deployment Guide	11
2.1	AWS Setup	11
2.2	General Linux Setup	14
2.3	Monitoring	19
3	API	21
3.1	Authentication	21
3.2	Payloads	21
3.3	Responses	22
3.4	API Endpoints	22
4	Data Model	23
4.1	parents and children	27
4.2	manual-matching vs auto-matching	28
4.3	what really happens to the BuildingSnapshot table on import (and when)	29
4.4	what really happens to the CanonicalBuilding table on import (and when)	31
4.5	organization	31
4.6	*_source_id fields	31
4.7	extra_data	32
4.8	saving and possible data loss	32
5	Mapping	35
5.1	Import	35
5.2	Mapping	35
5.3	Matching	36
5.4	Pairing	36
6	Modules	37
6.1	Audit Logs Package	37
6.2	Configuration	42
6.3	Data Package	43
6.4	Data Importer Package	43
6.5	Features Package	51
6.6	Green Button Package	51

6.7	Landing Package	53
6.8	Library Packages	61
6.9	Mapping Package	61
6.10	Managers Package	61
6.11	Models	62
6.12	Public Package	107
6.13	SEED Package	107
6.14	Serializers Package	120
6.15	URLs Package	121
6.16	Utilities Package	121
6.17	Views Package	125
7	Developer Resources	137
7.1	General Notes	137
7.2	Django Notes	137
7.3	AngularJS Integration Notes	139
7.4	Logging	140
7.5	BEDES Compliance and Managing Columns	140
7.6	Resetting the Database	141
7.7	Testing	141
8	License	143
9	Help	145
9.1	For SEED-Platform Users	145
9.2	For SEED-Platform Developers	145
10	Frequently Asked Questions	147
10.1	Questions	147
10.2	Issues	148
11	Updating this documentation	149
12	Indices and tables	151
	Python Module Index	153

The Standard Energy Efficiency Data (SEED) Platform™ is a web-based application that helps organizations easily manage data on the energy performance of large groups of buildings. Users can combine data from multiple sources, clean and validate it, and share the information with others. The software application provides an easy, flexible, and cost-effective method to improve the quality and availability of data to help demonstrate the economic and environmental benefits of energy efficiency, to implement programs, and to target investment activity.

The SEED application is written in Python/Django, with AngularJS, Bootstrap, and other JavaScript libraries used for the front-end. The back-end database is required to be PostgreSQL.

The SEED web application provides both a browser-based interface for users to upload and manage their building data, as well as a full set of APIs that app developers can use to access these same data management functions.

Work on SEED Platform is managed by the National Renewable Energy Laboratory, with funding from the U.S. Department of Energy.

1.1 Development Setup

1.1.1 Installation on OSX

These instructions are for installing and running SEED on Mac OSX in development mode.

Quick Installation Instructions

This section is intended for developers who may already have their machine ready for general development. If this is not the case, skip to Prerequisites.

- install Postgres 9.4 and redis for cache and message broker
- use a virtualenv (if desired)
- *git clone git@github.com:seed-platform/seed.git*
- create a *local_untracked.py* in the *config/settings* folder and add CACHE and DB config (example *local_untracked.py.dist*)
- *export DJANGO_SETTINGS_MODULE=config.settings.dev*
- *pip install -r requirements/local.txt*
- *./manage.py migrate*
- *./manage.py create_default_user*
- *./manage.py runserver*
- *celery -A seed worker -l info -c 4 --maxtasksperchild 1000 --events*
- navigate to *http://127.0.0.1:8000/app/#/profile/admin* in your browser to add users to organizations
- main app runs at *127.0.0.1:8000/app*

The `python manage.py create_default_user` will setup a default *superuser* which must be used to access the system the first time. The management command can also create other superusers.

```
./manage.py create_default_user --username=demo@seed.lbl.gov --organization=lbl --  
↪password=demo123
```

Prerequisites

These instructions assume you have [MacPorts](#) or [Homebrew](#). Your system should have the following dependencies already installed:

- `git` (*port install git* or *brew install git*)
- Mercurial (*port install hg* or *brew install mercurial*)
- `graphviz` (*brew install graphviz*)
- `virtualenv` and `virtualenvwrapper` (Recommended)

Note: Although you *could* install Python packages globally, this is the easiest way to install Python packages. Setting these up first will help avoid polluting your base Python installation and make it much easier to switch between different versions of the code.

```
pip install virtualenv  
pip install virtualenvwrapper
```

- Follow instructions on [virtualenvwrapper](#) to setup your environment.
- Once you have these installed, creating and entering a new virtualenv called “seed” for SEED development is by calling:

```
mkvirtualenv --python=python2.7 seed
```

PostgreSQL 9.4

MacPorts:

```
sudo su - root  
port install postgresql94-server postgresql94 postgresql94-doc  
# init db  
mkdir -p /opt/local/var/db/postgresql94/defaultdb  
chown postgres:postgres /opt/local/var/db/postgresql94/defaultdb  
su postgres -c '/opt/local/lib/postgresql94/bin/initdb -D /opt/local/var/db/  
↪postgresql94/defaultdb'  
  
# At this point, you may want to add start/stop scripts or aliases to  
# ~/.bashrc or your virtualenv ``postactivate`` script  
# (in ``~/.virtualenvs/{env-name}/bin/postactivate``).  
  
alias pg_start='sudo su postgres -c "/opt/local/lib/postgresql94/bin/pg_ctl \  
-D /opt/local/var/db/postgresql94/defaultdb \  
-l /opt/local/var/db/postgresql94/defaultdb/postgresql.log start"'  
alias pg_stop='sudo su postgres -c "/opt/local/lib/postgresql94/bin/pg_ctl \  
-D /opt/local/var/db/postgresql94/defaultdb stop'
```

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```
pg_start

sudo su - postgres
PATH=$PATH:/opt/local/lib/postgresql94/bin/
```

Homebrew:

```
brew install postgres
# follow the post install instructions to add to launchagents or call
# manually with `postgres -D /usr/local/var/postgres`
# Skip the remaining Postgres instructions!
```

Configure PostgreSQL. Replace ‘seeddb’, ‘seeduser’ with desired db/user. By default use password *seedpass* when prompted

```
createuser -P seeduser
createdb `whoami`
psql -c 'CREATE DATABASE "seeddb" WITH OWNER = "seeduser";'
psql -c 'GRANT ALL PRIVILEGES ON DATABASE "seeddb" TO seeduser;'
psql -c 'ALTER USER seeduser CREATEDB;'
psql -c 'ALTER USER seeduser CREATEROLE;'
```

Now exit any root environments, becoming just yourself (even though it’s not that easy being green), for the remainder of these instructions.

Python Packages

Run these commands as your normal user id.

Change to a virtualenv (using virtualenvwrapper) or do the following as a superuser. A virtualenv is usually better for development. Set the virtualenv to seed.

```
workon seed
```

Make sure PostgreSQL command line scripts are in your PATH (if using port)

```
export PATH=$PATH:/opt/local/lib/postgresql94/bin
```

Some packages (uWSGI) may need to find your C compiler. Make sure you have ‘gcc’ on your system, and then also export this to the CC environment variable:

```
export CC=gcc
```

Install requirements with *pip*

```
pip install -r requirements/local.txt
```

NodeJS/npm

Install *npm*. You can do this by installing from nodejs.org, MacPorts, or Homebrew:

MacPorts:

```
sudo port install npm
```

Homebrew:

```
brew install npm
```

Configure Django and Databases

In the `config/settings` directory, there must be a file called `local_untracked.py` that sets up databases and a number of other things. To create and edit this file, start by copying over the template

```
cd config/settings
cp local_untracked.py.dist local_untracked.py
```

Edit `local_untracked.py`. Open the file you created in your favorite editor. The PostgreSQL config section will look something like this:

```
# postgres DB config
DATABASES = {
    'default': {
        'ENGINE': 'django.db.backends.postgresql_psycopg2',
        'NAME': 'seeddb',
        'USER': 'seeduser',
        'PASSWORD': 'seedpass',
        'HOST': 'localhost',
        'PORT': '5432',
    }
}
```

You may want to comment out the AWS settings.

For Redis, edit the `CACHES` and `CELERY_BROKER_URL` values to look like this:

```
CACHES = {
    'default': {
        'BACKEND': 'redis_cache.cache.RedisCache',
        'LOCATION': "127.0.0.1:6379",
        'OPTIONS': {'DB': 1},
        'TIMEOUT': 300
    }
}
CELERY_BROKER_URL = 'redis://127.0.0.1:6379/1'
```

Run Django Migrations

Change back to the root of the repository. Now run the migration script to set up the database tables

```
export DJANGO_SETTINGS_MODULE=config.settings.dev
./manage.py migrate
```

Django Admin User

You need a Django admin (super) user.

```
./manage.py create_default_user --username=admin@my.org --organization=lbnl --
↳password=badpass
```

Of course, you need to save this user/password somewhere, since this is what you will use to login to the SEED website.

If you want to do any API testing (and of course you do!), you will need to add an API KEY for this user. You can do this in postgresql directly:

```
psql seeddb seeduser
seeddb=> update landing_seeduser set api_key='DEADBEEF' where id=1;
```

The 'secret' key DEADBEEF is hard-coded into the test scripts.

Install Redis

You need to manually install Redis for Celery to work.

MacPorts:

```
sudo port install redis
```

Homebrew:

```
brew install redis
# follow the post install instructions to add to launchagents or
# call manually with `redis-server`
```

Install JavaScript Dependencies

The JS dependencies are installed using node.js package management (npm), with a helper package called *bower*.

```
./bin/install_javascript_dependencies.sh
```

Start the Server

You should put the following statement in `~/.bashrc` or add it to the virtualenv post-activation script (e.g., in `~/virtualenvs/seed/bin/postactivate`).

```
export DJANGO_SETTINGS_MODULE=config.settings.dev
```

The combination of Redis, Celery, and Django have been encapsulated in a single shell script, which examines existing processes and does not start duplicate instances:

```
./bin/start-seed.sh
```

When this script is done, the Django stand-alone server will be running in the foreground.

Login

Open your browser and navigate to <http://127.0.0.1:8000>

Login with the user/password you created before, e.g., *admin@my.org* and *badpass*.

Note: these steps have been combined into a script called *start-seed.sh*. The script will also not start Celery or Redis if they already seem to be running.

1.1.2 Installation using Docker

Docker works natively on Linux, Mac OSX, and Windows 10. If you are using an older version of Windows (and some older versions of Mac OSX), you will need to install Docker Toolbox.

Choose either *Docker Toolbox*, *Docker Native (Windows/OSX)*, or *Docker Native (Ubuntu)* to install Docker.

Docker Toolbox

Install *Docker-Toolbox*, which installs several applications including Docker, Docker Machine, and Docker Compose.

- Create Docker-Machine Image

The command below will create a 100GB volume for development. This is a very large volume and can be adjusted. Make sure to create a volume greater than 30GB.

```
docker-machine create --virtualbox-disk-size 100000 -d virtualbox dev
```

- Start Docker-Machine Image

```
docker-machine start dev # if not already running
# export environment variables
eval $(docker-machine env dev)
```

- Get the Docker IP address (*docker-machine ip dev*)

Docker Native (Ubuntu)

Follow instructions [here](<https://docs.docker.com/engine/installation/linux/docker-ce/ubuntu/>).

- [Install Docker Compose](<https://docs.docker.com/compose/install/>)

Docker Native (Windows/OSX)

Following instructions (for Mac)[<https://docs.docker.com/docker-for-mac/install/>] or (for Windows)[<https://docs.docker.com/docker-for-windows/install/>].

- [Install Docker Compose](<https://docs.docker.com/compose/install/>)

Building and Configuring Containers

- Run Docker Compose

```
docker-compose build
```

Be Patient ... If the containers build successfully, then start the containers

```
docker-compose up
```

Note that you may need to build the containers a couple times for everything to converge

- Login to container

The docker-compose file creates a default user and password. Below are the defaults but can be overridden by setting environment variables.

```
username: user@seed-platform.org
password: super-secret-password
```

Note: Don't forget that you need to reset your default username and password if you are going to use these Docker images in production mode!

Deployment Guide

SEED is intended to be installed on Linux instances in the cloud (e.g. AWS), and on local hardware. SEED Platform does not officially support Windows for production deployment. If this is desired, see the Django [notes](#).

2.1 AWS Setup

Amazon Web Services ([AWS](#)) provides the preferred hosting for the SEED Platform.

seed is a [Django Project](#) and Django's documentation is an excellent place for general understanding of this project's layout.

2.1.1 Prerequisites

Ubuntu server 14.04 or newer.

```
sudo apt-get update
sudo apt-get upgrade
sudo apt-get install -y libpq-dev python-dev python-pip libatlas-base-dev \
gfortran build-essential g++ npm libxml2-dev libxslt1-dev git mercurial \
libssl-dev libffi-dev curl uwsgi-core uwsgi-plugin-python
```

PostgreSQL and Redis are not included in the above commands. For a quick installation on AWS it is okay to install PostgreSQL and Redis locally on the AWS instance. If a more permanent and scalable solution, it is recommended to use AWS's hosted Redis (ElastiCache) and PostgreSQL service.

Note: postgresql >=9.4 is required to support **'JSON Type'**

```
# To install PostgreSQL and Redis locally
sudo apt-get install redis-server
sudo apt-get install postgresql postgresql-contrib
```

Amazon Web Services (AWS) Dependencies

The following AWS services are used for **SEED**:

- RDS (PostgreSQL >=9.4)
- ElastiCache (redis)
- SES

2.1.2 Python Dependencies

Clone the **SEED** repository from **github**

```
$ git clone git@github.com:SEED-platform/seed.git
```

enter the repo and install the python dependencies from [requirements](#)

```
$ cd seed
$ sudo pip install -r requirements/local.txt
```

2.1.3 JavaScript Dependencies

npm is required to install the JS dependencies. The `bin/install_javascript_dependencies.sh` script will download all JavaScript dependencies and build them. `bower` and `gulp` should be installed globally for convenience.

```
$ sudo apt-get install build-essential
$ sudo apt-get install curl
```

```
$ sudo npm install -g bower gulp
$ bin/install_javascript_dependencies.sh
```

2.1.4 Database Configuration

Copy the `local_untracked.py.dist` file in the `config/settings` directory to `config/settings/local_untracked.py`, and add a `DATABASES` configuration with your database username, password, host, and port. Your database configuration can point to an AWS RDS instance or a PostgreSQL 9.4 database instance you have manually installed within your infrastructure.

```
# Database
DATABASES = {
    'default': {
        'ENGINE': 'django.db.backends.postgresql_psycopg2',
        'NAME': 'seed',
        'USER': '',
        'PASSWORD': '',
        'HOST': '',
        'PORT': '',
    }
}
```


In the above database configuration, `seed` is the database name, this is arbitrary and any valid name can be used as long as the database exists.

create the database within the postgres `psql` shell:

```
CREATE DATABASE seed;
```

or from the command line:

```
createdb seed
```

create the database tables and migrations:

```
python manage.py syncdb
python manage.py migrate
```

create a superuser to access the system

```
$ python manage.py create_default_user --username=demo@example.com --
  ↳organization=example --password=demo123
```

Note: Every user must be tied to an organization, visit `/app/#/profile/admin` as the superuser to create parent organizations and add users to them.

2.1.5 Cache and Message Broker

The SEED project relies on [redis](#) for both cache and message brokering, and is available as an AWS [ElastiCache](#) service. `local_untracked.py` should be updated with the `CACHES` and `CELERY_BROKER_URL` settings.

```
CACHES = {
    'default': {
        'BACKEND': 'redis_cache.cache.RedisCache',
        'LOCATION': "seed-core-cache.ntmprk.0001.usw2.cache.amazonaws.com:6379",
        'OPTIONS': { 'DB': 1 },
        'TIMEOUT': 300
    }
}
CELERY_BROKER_URL = 'redis://seed-core-cache.ntmprk.0001.usw2.cache.amazonaws.
  ↳com:6379/1'
```

2.1.6 Running Celery the Background Task Worker

[Celery](#) is used for background tasks (saving data, matching, creating projects, etc) and must be connected to the message broker queue. From the project directory, `celery` can be started:

```
celery -A seed worker -l INFO -c 2 -B --events --maxtasksperchild 1000
```

2.1.7 Running the Development Web Server

The Django dev server (not for production use) can be a quick and easy way to get an instance up and running. The dev server runs by default on port 8000 and can be run on any port. See Django's [runserver documentation](#) for more options.

```
$ ./manage.py runserver
```

2.1.8 Running a Production Web Server

Our recommended web server is uwsgi sitting behind nginx. The `bin/start_uwsgi.sh` script can be created to start uwsgi assuming your Ubuntu user is named `ubuntu`.

Also, static assets will need to be moved to S3 for production use. The `bin/post_compile` script contains a list of commands to move assets to S3.

```
$ bin/post_compile
```

```
$ bin/start_uwsgi
```

The following environment variables can be set within the `~/ .bashrc` file to override default Django settings.

```
export SENTRY_DSN=https://xyz@app.getsentry.com/123
export DEBUG=False
export ONLY_HTTPS=True
```

2.2 General Linux Setup

While Amazon Web Services (AWS) provides the preferred hosting for SEED, running on a bare-bones Linux server follows a similar setup, replacing the AWS services with their Linux package counterparts, namely: PostgreSQL and Redis.

SEED is a Django project and Django's documentation is an excellent place to general understanding of this project's layout.

2.2.1 Prerequisites

Ubuntu server 14.04 or newer

Install the following base packages to run SEED:

```
sudo apt-get update
sudo apt-get upgrade
sudo apt-get install libpq-dev python-dev python-pip libatlas-base-dev \
gfortran build-essential g++ npm libxml2-dev libxslt1-dev git mercurial \
libssl-dev libffi-dev curl uwsgi-core uwsgi-plugin-python
sudo apt-get install redis-server
sudo apt-get install postgresql postgresql-contrib
```

Note: postgresql >=9.3 is required to support JSON Type

2.2.2 Configure PostgreSQL

```
$ sudo su - postgres
$ createdb "seed-deploy"
$ createuser -P DBUsername
$ psql
postgres=# GRANT ALL PRIVILEGES ON DATABASE "seed-deploy" TO DBUsername;
postgres=# \q
$ exit
```

Note: Any database name and username can be used here in place of “seed-deploy” and DBUsername

2.2.3 Python Dependencies

clone the **seed** repository from **github**

```
$ git clone git@github.com:SEED-platform/seed.git
```

enter the repo and install the python dependencies from **requirements**

```
$ cd seed
$ sudo pip install -r requirements/local.txt
```

2.2.4 JavaScript Dependencies

npm is required to install the JS dependencies. The `bin/install_javascript_dependencies.sh` script will download all JavaScript dependencies and build them. bower and gulp should be installed globally for convenience.

```
$ curl -sL https://deb.nodesource.com/setup_5.x | sudo -E bash -
$ sudo apt-get install -y nodejs
$ sudo npm install -g bower gulp
```

```
$ bin/install_javascript_dependencies.sh
```

2.2.5 Django Database Configuration

Copy the `local_untracked.py.dist` file in the `config/settings` directory to `config/settings/local_untracked.py`, and add a DATABASES configuration with your database username, password, host, and port. Your database configuration can point to an AWS RDS instance or a PostgreSQL 9.4 database instance you have manually installed within your infrastructure.

```
# Database
DATABASES = {
    'default': {
        'ENGINE': 'django.db.backends.postgresql_psycopg2',
        'NAME': 'seed-deploy',
        'USER': 'DBUsername',
        'PASSWORD': '',
        'HOST': 'localhost',
        'PORT': '5432',
```

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```
}  
}
```

Note: Other databases could be used such as MySQL, but are not supported due to the postgres-specific [JSON Type](#)

In in the above database configuration, `seed` is the database name, this is arbitrary and any valid name can be used as long as the database exists. Enter the database name, user, password you set above.

The database settings can be tested using the Django management command, `./manage.py dbshell` to connect to the configured database.

create the database tables and migrations:

```
$ python manage.py migrate
```

2.2.6 Cache and Message Broker

The SEED project relies on [redis](#) for both cache and message brokering, and is available as an AWS [ElastiCache](#) service or with the `redis-server` Linux package. (`sudo apt-get install redis-server`)

`local_untracked.py` should be updated with the `CACHES` and `CELERY_BROKER_URL` settings.

```
CACHES = {  
    'default': {  
        'BACKEND': 'redis_cache.cache.RedisCache',  
        'LOCATION': "127.0.0.1:6379",  
        'OPTIONS': {'DB': 1},  
        'TIMEOUT': 300  
    }  
}  
  
CELERY_BROKER_URL = 'redis://127.0.0.1:6379/1'
```

2.2.7 Creating the initial user

create a superuser to access the system

```
$ python manage.py create_default_user --username=demo@example.com --  
↪organization=example --password=demo123
```

Note: Every user must be tied to an organization, visit `/app/#/profile/admin` as the superuser to create parent organizations and add users to them.

2.2.8 Running celery the background task worker

[Celery](#) is used for background tasks (saving data, matching, creating projects, etc) and must be connected to the message broker queue. From the project directory, `celery` can be started:

```
celery -A seed worker -l INFO -c 2 -B --events --maxtasksperchild 1000
```

2.2.9 Running the development web server

The Django dev server (not for production use) can be a quick and easy way to get an instance up and running. The dev server runs by default on port 8000 and can be run on any port. See Django's [runserver documentation](#) for more options.

```
$ python manage.py runserver --settings=config.settings.dev
```

2.2.10 Running a production web server

Our recommended web server is uwsgi sitting behind nginx. The python package uwsgi is needed for this, and should install to /usr/local/bin/uwsgi. Since AWS S3, is not being used here, we recommend using dj-static to load static files.

Note: The use of the dev settings file is production ready, and should be used for non-AWS installs with `DEBUG` set to `False` for production use.

```
$ sudo pip install uwsgi dj-static
```

Generate static files:

```
$ sudo ./manage.py collectstatic --settings=config.settings.dev
```

Update config/settings/local_untracked.py:

```
DEBUG = False
# static files
STATIC_ROOT = 'collected_static'
STATIC_URL = '/static/'
```

Start the web server:

```
$ sudo /usr/local/bin/uwsgi --http :80 --module standalone_uwsgi --max-requests 5000 -
↪-pidfile /tmp/uwsgi.pid --single-interpreter --enable-threads --cheaper-initial 1 -
↪p 4
```

Warning: Note that uwsgi has port set to 80. In a production setting, a dedicated web server such as NGINX would be receiving requests on port 80 and passing requests to uwsgi running on a different port, e.g 8000.

2.2.11 Environmental Variables

The following environment variables can be set within the `~/ .bashrc` file to override default Django settings.

```
export SENTRY_DSN=https://xyz@app.getsentry.com/123
export DEBUG=False
export ONLY_HTTPS=True
```

2.2.12 SMTP service

In the AWS setup, we can use SES to provide an email service for Django. The service is configured in the `config/settings/main.py`:

```
EMAIL_BACKEND = 'django_ses.SESBackend'
```

Many options for setting up your own SMTP service/server or using other SMTP third party services are available and compatible including [gmail](#).

Django can likewise send emails via python's `smtp`lib with `sendmail` or `postfix` installed. See their [docs](#) for more info.

```
EMAIL_BACKEND = 'django.core.mail.backends.smtp.EmailBackend'
```

2.2.13 local_untracked.py

```
# PostgreSQL DB config
DATABASES = {
    'default': {
        'ENGINE': 'django.db.backends.postgresql_psycopg2',
        'NAME': 'seed',
        'USER': 'your-username',
        'PASSWORD': 'your-password',
        'HOST': 'your-host',
        'PORT': 'your-port',
    }
}

# config for local storage backend
DOMAIN_URLCONFS = {}
DOMAIN_URLCONFS['default'] = 'urls.main'

CACHES = {
    'default': {
        'BACKEND': 'redis_cache.cache.RedisCache',
        'LOCATION': "127.0.0.1:6379",
        'OPTIONS': {'DB': 1},
        'TIMEOUT': 300
    }
}
CELERY_BROKER_URL = 'redis://127.0.0.1:6379/1'

# SMTP config
EMAIL_BACKEND = 'django.core.mail.backends.smtp.EmailBackend'

# static files
STATIC_ROOT = 'collected_static'
STATIC_URL = '/static/'
```

2.3 Monitoring

2.3.1 Sentry

Sentry can monitor your webservers for any issues. To enable sentry add the following to your `local_untracked.py` files after setting up your Sentry account on sentry.io.

The `RAVEN_CONFIG` is used for the backend and the `SENTRY_JS_DSN` is used for the frontend. At the moment, it is recommended to setup two sentry projects, one for backend and one for frontend.

```
import raven

RAVEN_CONFIG = {
    'dsn': 'https://<user>:<key>@sentry.io/<job_id>',
    # If you are using git, you can also automatically configure the
    # release based on the git info.
    'release': raven.fetch_git_sha(os.path.abspath(os.curdir)),
}
SENTRY_JS_DSN = 'https://<key>@sentry.io/<job_id>'
```


3.1 Authentication

Authentication is handled via an authorization token set in an HTTP header. To request an API token, go to `/app/#/profile/developer` and click ‘Get a New API Key’.

Authenticate every API request with your username (email) and the API key via [Basic Auth](#).

Using Python, use the requests library:

```
import requests

result = requests.get('https://seed-platform.org/api/v2/version/', auth=(user_email, ↵
↵api_key))
print result.json()
```

Using curl, pass the username and API key as follows:

```
curl -u user_email:api_key http://seed-platform.org/api/v2/version/
```

If authentication fails, the response’s status code will be 302, redirecting the user to `/app/login`.

3.2 Payloads

Many requests require a JSON-encoded payload and parameters in the query string of the url. A frequent requirement is including the `organization_id` of the org you belong to. For example:

```
curl -u user_email:api_key https://seed-platform.org/api/v2/organizations/12/
```

Or in a JSON payload:

```
curl -u user_email:api_key \  
-d '{"organization_id":6, "role": "viewer"}' \  
https://seed-platform.org/api/v2/users/12/update_role/
```

Using Python:

```
params = {'organization_id': 6, 'role': 'viewer'}  
result = requests.post('https://seed-platform.org/api/v2/users/12/update_role/',  
                        data=json.dumps(params),  
                        auth=(user_email, api_key))  
  
print result.json()
```

3.3 Responses

Responses from all requests will be JSON-encoded objects, as specified in each endpoint's documentation. In the case of an error, most endpoints will return this instead of the expected payload (or an HTTP status code):

```
{  
    "status": "error",  
    "message": "explanation of the error here"  
}
```

3.4 API Endpoints

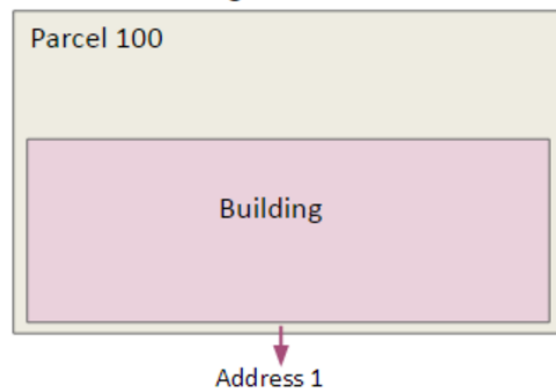
A list of interactive endpoints are available by accessing the API menu item on the left navigation pane within your account on your SEED instance.

To view a list of non-interactive endpoints without an account, view [swagger](#) on the development server.

CHAPTER 4

Data Model

Case A: 1 Building to 1 Parcel

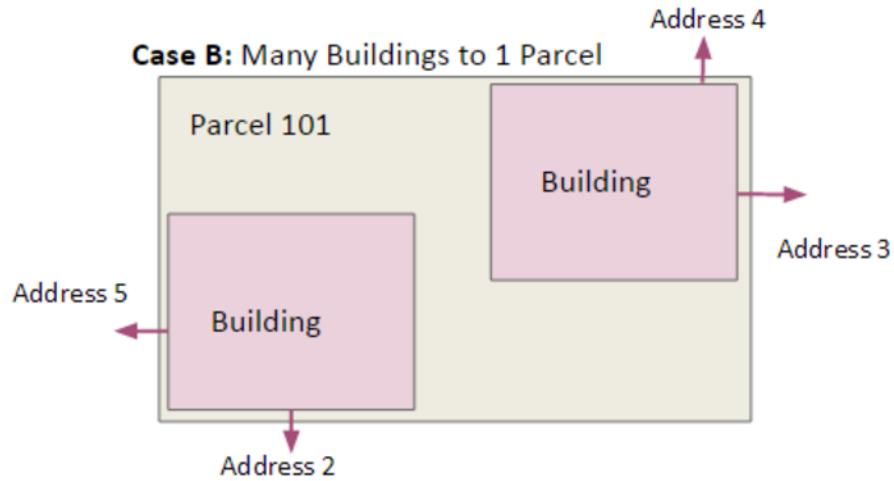


Source Data

Tax Assessor Data		
One Tax Lot ID per record		
Tax Lot ID	Address	District
100	44 West 1st	Willow

Building Data	
Building ID	Tax Lot ID
30	100

Portfolio Manager Data					
One PM record associated with one Tax Lot ID or Building ID					
PM ID	Building ID	Tax Lot ID	Energy Score	EUI	Year Ending
1	30	100	76	15,000	12/31/2015

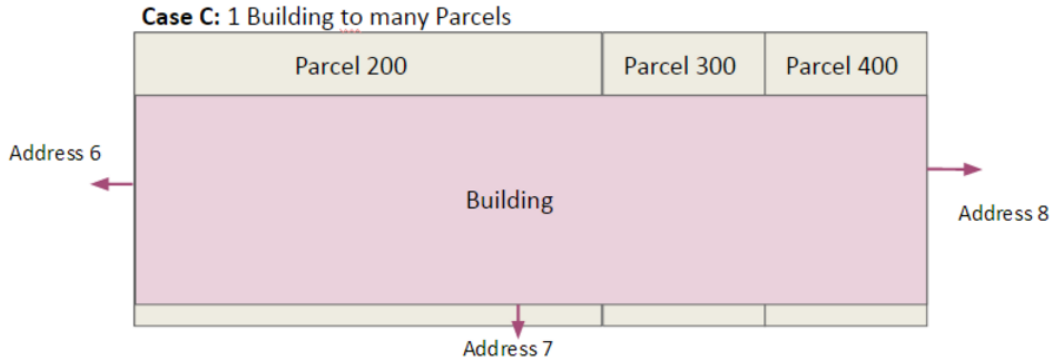


Source Data

Tax Assessor Data		
One Tax Lot ID per record		
Tax Lot ID	Address	District
101	15 Broadway	Willow

Building Data	
Building ID	Tax Lot ID
101-A	101
101-B	101

Portfolio Manager Data					
Multiple PM records associated with one Tax Lot ID or Building ID					
PM ID	Building ID	Tax Lot ID	Energy Score	EUI	Year Ending
2	101-A	101	66	12,000	12/31/2015
3	101-B	101	98	2,500	12/31/2015

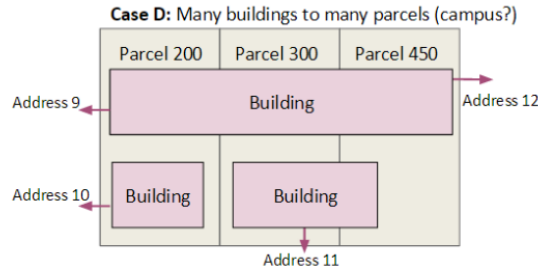


Source Data

Tax Assessor Data One Tax Lot ID per record		
Tax Lot ID	Address	District
200	1 Adams	Willow
300	2 West	Willow
400	3 Exeter	Willow

Building Data	
Building ID	Tax Lot ID
44	200;300;400

Portfolio Manager Data One PM record or Building ID associated with Multiple Tax Lot IDs					
PM ID	Building ID	Tax Lot ID	Energy Score	EUI	Year Ending
4	44	200;300;400	82	161,000	12/31/2015

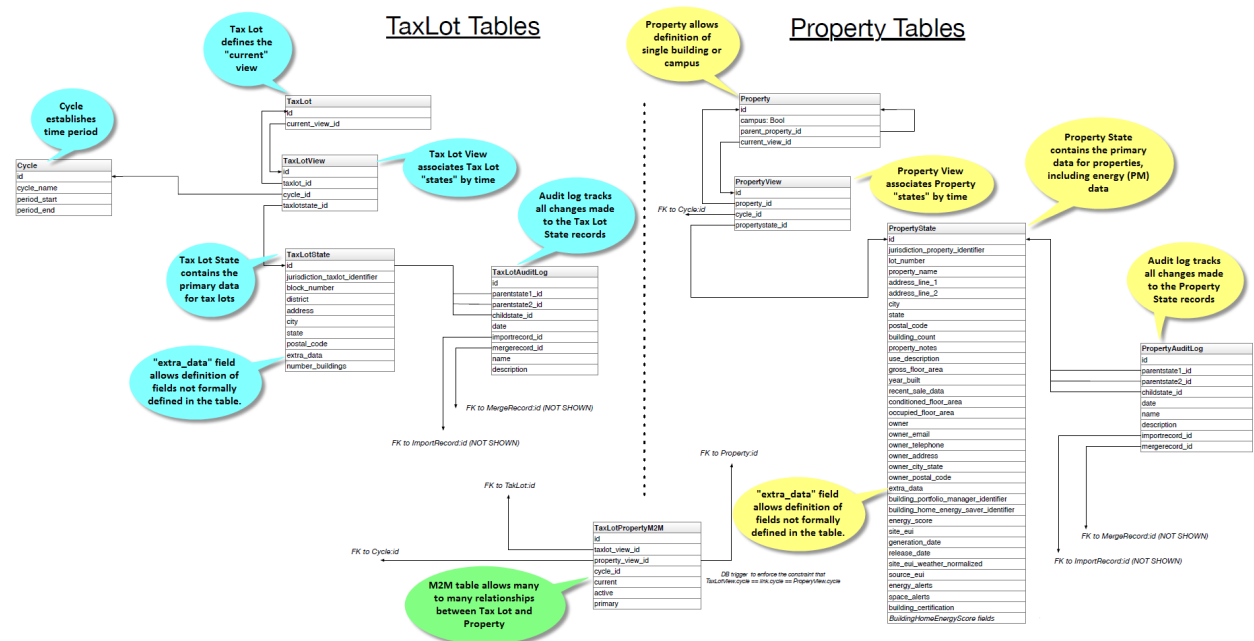


Source Data

Tax Assessor Data One Tax Lot ID per record		
Tax Lot ID	Address	District
200	1 Adams	Willow
300	2 West	Willow
400	3 Exeter	Willow

Building Data	
Building ID	Tax Lot ID
L1	200;300;400
L2	200
L3	300;450

Portfolio Manager Data Hierarchical campus to building: One PM record for campus and multiple PM records for campus buildings related many to many to Tax Lots							
PM ID	Property Name	Parent Name	Parent PM ID	Tax Lot ID	Energy Score	EUI	Year Ending
5	Lucky Campus	Lucky Campus	5	200;300;450	--	--	12/31/2013
6	Building 1	Lucky Campus	5	200;300;450	59	107	12/31/2013
7	Building 2	Lucky Campus	5	200	62	268	12/31/2013
8	Building 3	Lucky Campus	5	300;450	74	961	12/31/2013



Todo: Documentation below is out of state and needs updated.

Our primary data model is based on a tree structure with BuildingSnapshot instances as nodes of the tree and the tip of the tree referenced by a CanonicalBuilding.

Take the following example: a user has loaded a CSV file containing information about one building and created the first BuildingSnapshot (BS0). At this point in time, BS0 is linked to the first CanonicalBuilding (CB0), and CB0 is also linked to BS0.

```
BS0 <-- CB0
BS0 --> CB0
```

These relations are represented in the database as foreign keys from the BuildingSnapshot table to the CanonicalBuilding table, and from the CanonicalBuilding table to the BuildingSnapshot table.

The tree structure comes to fruition when a building, BS0 in our case, is matched with a new building, say BS1, enters the system and is auto-matched.

Here BS1 entered the system and was matched with BS0. When a match occurs, a new BuildingSnapshot is created, BS2, with the fields from the existing BuildingSnapshot, BS0, and the new BuildingSnapshot, BS1, merged together. If both the existing and new BuildingSnapshot have data for a given field, the new record's fields are preferred and merged into the child, BS2.

The fields from new snapshot are preferred because that is the newer of the two records from the perspective of the system. By preferring the most recent fields this allows for evolving building snapshots over time. For example, if an existing canonical record has a Site EUI value of 75 and some changes happen to a building that cause this to change to 80 the user can submit a new record with that change.

All BuildingSnapshot instances point to a CanonicalBuilding.

```
BS0  BS1
 \  /
  BS2 <-- CB0

BS0 --> CB0
BS1 --> CB0
BS2 --> CB0
```

4.1 parents and children

BuildingSnapshots also have linkage to other BuildingSnapshots in order to keep track of their *parents* and *children*. This is represented in the Django model as a many-to-many relation from BuildingSnapshot to BuildingSnapshot. It is represented in the PostgreSQL database as an additional seed_buildingsnapshot_children table.

In our case here, BS0 and BS1 would both have *children* BS2, and BS2 would have *parents* BS0 and BS1.

Note: throughout most of the application, the `search_buildings` endpoint is used to search or list active building. This is to say, buildings that are pointed to by an active CanonicalBuilding. The `search_mapping_results` endpoint allows the search of buildings regardless of whether the BuildingSnapshot is pointed to by an active CanonicalBuilding or not and this search is needed during the mapping preview and matching sections of the application.

For illustration purposes let's suppose BS2 and a new building BS3 match to form a child BS4.

parent	child
BS0	BS2
BS1	BS2
BS2	BS4
BS3	BS4

And the corresponding tree would look like:

```

BS0  BS1
 \  /
  BS2 BS3
   \  /
    BS4 <-- CB0

BS0 --> CB0
BS1 --> CB0
BS2 --> CB0
BS3 --> CB0
BS4 --> CB0

```

4.1.1 matching

During the auto-matching process, if a *raw* BuildingSnapshot matches an existing BuildingSnapshot instance, then it will point to the existing BuildingSnapshot instance's CanonicalBuilding. In the case where there is no existing BuildingSnapshot to match, a new CanonicalBuilding will be created, as happened to B0 and C0 above.

field	BS0	BS1	BS2 (child)
id1	11	11	11
id2		12	12
id3	13		13
id4	14	15	15

4.2 manual-matching vs auto-matching

Since BuildingSnapshots can be manually matched, there is the possibility for two BuildingSnapshots each with an active CanonicalBuilding to match and the system has to choose to move only one CanonicalBuilding to the tip of the tree for the primary BuildingSnapshot and *deactivate* the secondary BuildingSnapshot's CanonicalBuilding.

Take for example:

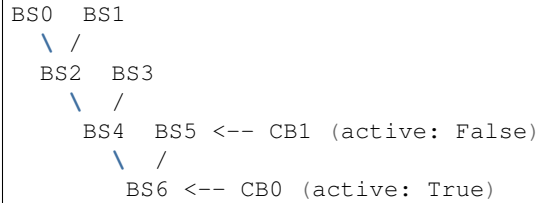
```

BS0  BS1
 \  /
  BS2 BS3
   \  /
    BS4 <-- CB0 (active: True)      BS5 <-- CB1 (active: True)

```

If a user decides to manually match BS4 and BS5, the system will take the primary BuildingSnapshot's CanonicalBuilding and have it point to their child and deactivate CB1. The deactivation is handled by setting a field on the CanonicalBuilding instance, *active*, from *True* to *False*.

Here is what the tree would look like after the manual match of **BS4** and **BS5**:



Even though BS5 is pointed to by a CanonicalBuilding, CB1, BS5 will not be returned by the normal `search_buildings` endpoint because the CanonicalBuilding pointing to it has its field `active` set to `False`.

Note: anytime a match is **unmatched** the system will create a new CanonicalBuilding or set an existing CanonicalBuilding's `active` field to `True` for any leaf BuildingSnapshot trees.

4.3 what really happens to the BuildingSnapshot table on import (and when)

The above is conceptually what happens but sometimes the devil is in the details. Here is what happens to the BuildingSnapshot table in the database when records are imported.

Every time a record is added at least two BuildingSnapshot records are created.

Consider the following simple record:

Property Id	Year Ending	Property Floor Area	Address 1	Release Date
499045	2000	1234	1 fake st	12/12/2000

The first thing the user is upload the file. When the user sees the “Successful Upload!” dialog one record has been added to the BuildingSnapshot table.

This new record has an id (73700 in this case) and a created and modified timestamp. Then there are a lot of empty fields and a `source_type` of 0. Then there is the `extra_data` column which contains the contents of the record in key-value form:

Address 1 “1 fake st”

Property Id “499045”

Year Ending “2000”

Release Date “12/12/2000”

Property Floor Area “1234”

And a corresponding `extra_data_sources` that looks like

Address 1 73700

Property Id 73700

Year Ending 73700

Release Date 73700

Property Floor Area 73700

All of the fields that look like `_source_id` are also populated with 73700 E.G. `owner_postal_code_source_id`.

The other fields of interest are the `organization` field which is populated with the user's default organization and the `import_file_id` field which is populated with a reference to a `data_importer_importfile` record.

At this point the record has been created before the user hits the "Continue to data mapping" button.

The second record (id = 73701) is created by the time the user gets to the screen with the "Save Mappings" button. This second record has the following fields populated:

- `id`
- `created`
- `modified`
- `pm_property_id`
- `year_ending`
- `gross_floor_area`
- `address_line_1`
- `release_date`
- `source_type` (this is 2 instead of 0 as with the other record)
- `import_file_id`
- `organization_id`.

That is all. All other fields are empty. In this case that is all that happens.

Now consider the same user uploading a new file from the next year that looks like

Property Id	Year Ending	Property Floor Area	Address 1	Release Date
499045	2000	1234	1 fake st	12/12/2001

As before one new record is created on upload. This has id 73702 and follows the same pattern as 73700. And similarly 73703 is created like 73701 before the "Save Mappings" button appears.

However this time the system was able to make a match with an existing record. After the user clicks the "Confirm mappings & start matching" button a new record is created with ID 73704.

73704 is identical to 73703 (in terms of contents of the `BuildingSnapshot` table only) with the following exceptions:

- `created` and `modified` timestamps are different
- `match_type` is populated and has a value of 1
- `confidence` is populated and has a value of .9
- `source_type` is 4 instead of 2
- `canonical_building_id` is populated with a value
- `import_file_id` is NULL
- `last_modified_by_id` is populated with value 2 (This is a key into the `landing_seeduser` table)
- `address_line_1_source_id` is 73701
- `gross_floor_area_source_id` is populated with value 73701
- `pm_property_id_source_id` is populated with 73701
- `release_date_source_id` is populated with 73701

- year_ending_source_id is populated with 73701

4.4 what really happens to the CanonicalBuilding table on import (and when)

In addition to the BuildingSnapshot table the CanonicalBuilding table is also updated during the import process. To summarize the above 5 records were created in the BuildingSnapshot table:

1. 73700 is created from the raw 2000 data
2. 73701 is the mapped 2000 data,
3. 73702 is created from the raw 2001 data
4. 73703 is the mapped 2001 data
5. 73704 is the result of merging the 2000 and 2001 data.

In this process CanonicalBuilding is updated twice. First when the 2000 record is imported the CanonicalBuilding gets populated with one new row at the end of the matching step. I.E. when the user sees the “Load More Data” screen. At this point there is a new row that looks like

id	active	canonical_building_id
20505	TRUE	73701

At this point there is one new canonical building and that is the BuildingSnapshot with id 73701. Next the user uploads the 2001 data. When the “Matching Results” screen appears the CanonicalBuilding table has been updated. Now it looks like

id	active	canonical_building_id
20505	TRUE	73704

There is still only one canonical building but now it is the BuildingSnapshot record that is the result of merging the 2000 and 2001 data: id = 73704.

4.5 organization

BuildingSnapshots belong to an Organization field that is a foreign key into the organization model (orgs_organization in Postgres).

Many endpoints filter the buildings based on the organizations the requesting user belongs to. E.G. get_buildings changes which fields are returned based on the requesting user’s membership in the BuildingSnapshot’s organization.

4.6 *_source_id fields

Any field in the BuildingSnapshot table that is populated with data from a submitted record will have a corresponding _source_id field. E.G pm_property_id has pm_property_id_source_id, address_line_1 has address_line_1_source_id, etc...

These are foreign keys into the BuildingSnapshot that is the source of that value. To extend the above table

field	BS0	BS1	BS2 (child)	BS2 (child) _source_id
id1	11		11	BS0
id2		12	12	BS1

NOTE: The BuildingSnapshot records made from the raw input file have all the `_source_id` fields populated with that record's ID. The non-canonical BuildingSnapshot records created from the mapped data have none set. The canonical BuildingSnapshot records that are the result of merging two records have only the `_source_id` fields set where the record itself has data. E.G. in the above `address_line_1` is set to "1 fake st." so there is a value in the canonical BuildingSnapshot's `address_line_1_source_id` field. However there is no block number so `block_number_source_id` is empty. This is unlike the two raw BuildingSnapshot records who also have no `block_number` but nevertheless have a `block_number_source_id` populated.

4.7 extra_data

The BuildingSnapshot model has many "named" fields. Fields like "address_line_1", "year_built", and "pm_property_id". However the users are allowed to submit files with arbitrary fields. Some of those arbitrary fields can be mapped to "named" fields. E.G. "Street Address" can usually be mapped to "Address Line 1". For all the fields that cannot be mapped like that there is the `extra_data` field.

`extra_data` is Django json field that serves as key-value storage for other user-submitted fields. As with the other "named" fields there is a corresponding `extra_data_sources` field that serves the same role as the other `_source_id` fields. E.G. If a BuildingSnapshot has an `extra_data` field that looks like

```
an_unknown_field 1
```

```
something_else 2
```

It should have an `extra_data_sources` field that looks like

```
an_unknown_field some_BuildingSnapshot_id
```

```
something_else another_BuildingSnapshot_id
```

4.8 saving and possible data loss

When saving a Property file some fields that are truncated if too long. The following are truncated to 255 characters

- `jurisdiction_tax_lot_id`
- `pm_property_id`
- `custom_id_1`
- `ubid`
- `lot_number`
- `block_number`
- `district`
- `owner`
- `owner_email`
- `owner_telephone`
- `owner_address`

- owner_city_state
- owner_postal_code

And the following are truncated to 255:

- property_name
- address_line_1
- address_line_2
- city
- postal_code
- state_province
- building_certification

No truncation happens to any of the fields stored in extra_data.

This document describes the set of calls that occur from the web client or API down to the back-end for the process of mapping.

An overview of the process is:

1. Import - A file is uploaded and saved in the database
2. Mapping - Mapping occurs on that file
3. Matching / Merging
4. Pairing

5.1 Import

From the web UI, the import process invokes `seed.views.main.save_raw_data` to save the data. When the data is done uploading, we need to know whether it is a Portfolio Manager file, so we can add metadata to the record in the database. The end of the upload happens in `seed.data_importer.views.DataImportBackend.upload_complete` or `seed.data_importer.views.handle_s3_upload_complete`, depending on whether it is using a local file system or Amazon S3-based backend. At this point, the request object has additional attributes for Portfolio Manager files. These are saved in the model `seed.data_importer.models.ImportFile`.

5.2 Mapping

After the data is saved, the UI invokes `DataFileViewSet.mapping_suggestions` to get the columns to display on the mapping screen. This loads back the model that was mentioned above as an `ImportFile` instance, and then the `from_portfolio_manager` property can be used to choose the branch of the code:

If it is a Portfolio Manager file the `seed.common.mapper.get_pm_mapping` method provides a high-level interface to the Portfolio Manager mapping (see comments in the containing file, `mapper.py`), and the result is used to populate the return value for this method, which goes back to the UI to display the mapping screen.

Otherwise the code does some auto-magical logic to try and infer the “correct” mapping.

5.3 Matching

Todo: document

5.4 Pairing

Todo: document

6.1 Audit Logs Package

6.1.1 Submodules

6.1.2 Models

class `seed.audit_logs.models.AuditLog(*args, **kwargs)`

Bases: `django_extensions.db.models.TimeStampedModel`

An audit log of events and notes. Inherits `created` and `modified` from `TimeStampedModel`

exception `DoesNotExist`

Bases: `django.core.exceptions.ObjectDoesNotExist`

exception `MultipleObjectsReturned`

Bases: `django.core.exceptions.MultipleObjectsReturned`

action

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

action_note

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

action_response

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

audit_type

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

content_object

Provide a generic many-to-one relation through the `content_type` and `object_id` fields.

This class also doubles as an accessor to the related object (similar to `ForwardManyToOneDescriptor`) by adding itself as a model attribute.

content_type

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a `ForwardManyToOneDescriptor` instance.

content_type_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

get_audit_type_display (***morekwargs*)

get_next_by_created (***morekwargs*)

get_next_by_modified (***morekwargs*)

get_previous_by_created (***morekwargs*)

get_previous_by_modified (***morekwargs*)

id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

object_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

objects = `<seed.audit_logs.models.AuditLogManager object>`

organization

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a `ForwardManyToOneDescriptor` instance.

organization_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

save (**args*, ***kwargs*)

Ensure that only notes are saved

to_dict ()

serializes an `audit_log`

user

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a `ForwardManyToOneDescriptor` instance.

user_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

class `seed.audit_logs.models.AuditLogManager`

Bases: `django.db.models.manager.Manager`

ExpressionManager with update preventing the update of non-notes

get_queryset()

Returns a new `QuerySet` object. Subclasses can override this method to easily customize the behavior of the Manager.

log_action (*request, content_object, organization_id, action_note=None, audit_type=0*)

use_for_related_fields = True

class `seed.audit_logs.models.AuditLogQuerySet` (*model=None, query=None, using=None, hints=None*)

Bases: `django.db.models.query.QuerySet`

update(*args, **kwargs)

only notes should be updated, so filter out non-notes

6.1.3 Tests

class `seed.audit_logs.tests.AuditLogModelTests` (*methodName='runTest'*)

Bases: `django.test.testcases.TestCase`

setUp()

Hook method for setting up the test fixture before exercising it.

test_audit()

tests audit save

test_audit_save()

audit_log LOG should not be able to save/update

test_audit_update()

audit_log LOG should not be able to save/update

test_generic_relation()

test CanonicalBuilding.audit_logs

test_get_all_audit_logs_for_an_org()

gets all audit logs for an org

test_model__unicode__()

tests the AuditLog inst. str or unicode

test_note()

tests note save

test_note_save()

notes should be able to save/update

```
class seed.audit_logs.tests.AuditLogViewTests (methodName='runTest')
    Bases: django.test.testcases.TestCase

    setUp()
        Hook method for setting up the test fixture before exercising it.

    test_create_note()
        tests create_note

    test_get_building_logs()
        test the django view get_building_logs

    test_update_note()
        tests update_note
```

6.1.4 URLs

6.1.5 Views

`seed.audit_logs.views.create_note(request, *args, **kwargs)`
Retrieves logs for a building.

POST Expects the CanonicalBuildings's id in the JSON payload as `building_id`. Expects an organization_id (to which project belongs) in the query string. Expects the `action_note` to be in the JSON payload as `action_note`

Returns:

```
'audit_log' : {
    'user': {
        'first_name': user's firstname,
        'last_name': user's last_name,
        'id': user's id,
        'email': user's email address
    },
    'id': audit log's id,
    'audit_type': 'Note',
    'created': DateTime,
    'modified': DateTime,
    'action': method triggering log entry,
    'action_response': response of action,
    'action_note': the note body
    'organization': {
        'name': name of org,
        'id': id of org
    },
},
'status': 'success'
```

`seed.audit_logs.views.get_building_logs(request, *args, **kwargs)`
Retrieves logs for a building.

GET Expects the CanonicalBuildings's id in the query string as `building_id`. Expects an organization_id (to which project belongs) in the query string.

Returns:

```
'audit_logs' : [
    {
```

(continues on next page)

(continued from previous page)

```

    'user': {
        'first_name': user's firstname,
        'last_name': user's last_name,
        'id': user's id,
        'email': user's email address
    },
    'id': audit log's id,
    'audit_type': 'Log' or 'Note',
    'created': DateTime,
    'modified': DateTime,
    'action': method triggering log entry,
    'action_response': response of action,
    'action_note': the note body if Note or further description
    'organization': {
        'name': name of org,
        'id': id of org
    }
}, ...
],
'status': 'success'

```

`seed.audit_logs.views.update_note(request, *args, **kwargs)`

Retrieves logs for a building.

PUT Expects the CanonicalBuildings's id in the JSON payload as `building_id`. Expects an organization_id (to which project belongs) in the query string. Expects the `action_note` to be in the JSON payload as `action_note`. Expects the `audit_log_id` to be in the JSON payload as `audit_log_id`.

Returns:

```

'audit_log' : {
    'user': {
        'first_name': user's firstname,
        'last_name': user's last_name,
        'id': user's id,
        'email': user's email address
    },
    'id': audit log's id,
    'audit_type': 'Note',
    'created': DateTime,
    'modified': DateTime,
    'action': method triggering log entry,
    'action_response': response of action,
    'action_note': the note body
    'organization': {
        'name': name of org,
        'id': id of org
    }
},
'status': 'success'

```

6.2 Configuration

6.2.1 Submodules

6.2.2 Storage

6.2.3 Template Context

```
config.template_context.sentry_js(request)
config.template_context.session_key(request)
```

6.2.4 Tests

6.2.5 Utils

```
config.utils.de_camel_case(name)
```

6.2.6 Views

```
config.views.robots_txt(request, allow=False)
```

6.2.7 WSGI

WSGI config for config project.

This module contains the WSGI application used by Django's development server and any production WSGI deployments. It should expose a module-level variable named `application`. Django's `runserver` and `runfcgi` commands discover this application via the `WSGI_APPLICATION` setting.

Usually you will have the standard Django WSGI application here, but it also might make sense to replace the whole Django WSGI application with a custom one that later delegates to the Django one. For example, you could introduce WSGI middleware here, or combine a Django application with an application of another framework.

6.3 Data Package

6.3.1 Submodules

6.3.2 BEDES

6.3.3 Module contents

6.4 Data Importer Package

6.4.1 Submodules

6.4.2 Managers

```
class seed.data_importer.managers.NotDeletedManager
    Bases: django.db.models.manager.Manager

    get_queryset (*args, **kwargs)
        Returns a new QuerySet object. Subclasses can override this method to easily customize the behavior of
        the Manager.

    use_for_related_fields = True
```

6.4.3 Models

6.4.4 URLs

6.4.5 Utils

```
class seed.data_importer.utils.CoercionRobot
    Bases: object

    lookup_hash (uncoerced_value, destination_model, destination_field)

    make_key (value, model, field)

seed.data_importer.utils.acquire_lock (name, expiration=None)
    Tries to acquire a lock from the cache. Also sets the lock's value to the current time, allowing us to see how
    long it has been held.

    Returns False if lock already belongs by another process.

seed.data_importer.utils.chunk_iterable (iterlist, chunk_size)
    Breaks an iterable (e.g. list) into smaller chunks, returning a generator of the chunk.

seed.data_importer.utils.get_core_pk_column (table_column_mappings, primary_field)

seed.data_importer.utils.get_lock_time (name)
    Examines a lock to see when it was acquired.

seed.data_importer.utils.release_lock (name)
    Frees a lock.
```

6.4.6 Views

```
class seed.data_importer.views.ImportFileViewSet (**kwargs)
    Bases: rest_framework.viewsets.ViewSet

data_quality_progress (request, *args, **kwargs)
    Return the progress of the data quality check. — type:

        status: required: true type: string description: either success or error
        progress: type: integer description: status of background data quality task
    parameter_strategy: replace parameters:
        • name: pk description: Import file ID required: true paramType: path

destroy (request, *args, **kwargs)
    Returns suggested mappings from an uploaded file's headers to known data fields. — type:

        status: required: true type: string description: Either success or error
    parameter_strategy: replace parameters:
        • name: pk description: import_file_id required: true paramType: path
        • name: organization_id description: The organization_id for this user's organization required: true
          paramType: query

filtered_mapping_results (request, *args, **kwargs)
    Retrieves a paginated list of Properties and Tax Lots for an import file after mapping. — parameter_strategy: replace parameters:
        • name: pk description: Import File ID (Primary key) type: integer required: true paramType: path
    response_serializer: MappingResultsResponseSerializer

first_five_rows (request, *args, **kwargs)
    Retrieves the first five rows of an ImportFile. — type:

        status: required: true type: string description: either success or error
        first_five_rows: type: array of strings description: list of strings for each of the first five rows
          for this import file
    parameter_strategy: replace parameters:
        • name: pk description: "Primary Key" required: true paramType: path

static has_coparent (state_id, inventory_type, fields=None)
    Return the coparent of the current state id based on the inventory type. If fields are given (as a list), then it
    will only return the fields specified of the state model object as a dictionary.

    Parameters

        • state_id – int, ID of PropertyState or TaxLotState
        • inventory_type – string, either properties | taxlots
        • fields – list, either None or list of fields to return

    Returns dict or state object, If fields is not None then will return state_object

mapping_done (request, *args, **kwargs)
    Tell the backend that the mapping is complete. — type:

        status: required: true type: string description: either success or error
```


message: required: false type: string description: error message, if any

parameter_strategy: replace parameters:

- name: pk description: Import file ID required: true paramType: path

mapping_suggestions (*request, *args, **kwargs*)

Returns suggested mappings from an uploaded file's headers to known data fields. — type:

status: required: true type: string description: Either success or error

suggested_column_mappings: required: true type: dictionary description: Dictionary where (key, value) = (the column header from the file, array of tuples (destination column, score))

building_columns: required: true type: array description: A list of all possible columns

building_column_types: required: true type: array description: A list of column types corresponding to the building_columns array

parameter_strategy: replace parameters:

- name: pk description: import_file_id required: true paramType: path
- name: organization_id description: The organization_id for this user's organization required: true paramType: query

match (*request, *args, **kwargs*)

matching_results (*request, *args, **kwargs*)

Retrieves the number of matched and unmatched properties & tax lots for a given ImportFile record. Specifically for new imports

GET Expects import_file_id corresponding to the ImportFile in question.

Returns:

```
{
  'status': 'success',
  'properties': {
    'matched': Number of PropertyStates that have been matched,
    'unmatched': Number of PropertyStates that are unmatched new imports
  },
  'tax_lots': {
    'matched': Number of TaxLotStates that have been matched,
    'unmatched': Number of TaxLotStates that are unmatched new imports
  }
}
```

matching_status (*request, *args, **kwargs*)

Retrieves the number and ids of matched and unmatched properties & tax lots for a given ImportFile record. Specifically for hand-matching

GET Expects import_file_id corresponding to the ImportFile in question.

Returns:

```
{
  'status': 'success',
  'properties': {
    'matched': Number of PropertyStates that have been matched,
    'matched_ids': Array of matched PropertyState ids,
```

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```

        'unmatched': Number of PropertyStates that are unmatched records,
        'unmatched_ids': Array of unmatched PropertyState ids
    },
    'tax_lots': {
        'matched': Number of TaxLotStates that have been matched,
        'matched_ids': Array of matched TaxLotState ids,
        'unmatched': Number of TaxLotStates that are unmatched records,
        'unmatched_ids': Array of unmatched TaxLotState ids
    }
}

```

perform_mapping (*request*, **args*, ***kwargs*)

Starts a background task to convert imported raw data into PropertyState and TaxLotState, using user's column mappings. — type:

status: required: true type: string description: either success or error

progress_key: type: integer description: ID of background job, for retrieving job progress

parameter_strategy: replace parameters:

- name: pk description: Import file ID required: true paramType: path

queryset

raise_exception = True

raw_column_names (*request*, **args*, ***kwargs*)

Retrieves a list of all column names from an ImportFile. — type:

status: required: true type: string description: either success or error

raw_columns: type: array of strings description: list of strings of the header row of the Import-File

parameter_strategy: replace parameters:

- name: pk description: “Primary Key” required: true paramType: path

retrieve (*request*, **args*, ***kwargs*)

Retrieves details about an ImportFile. — type:

status: required: true type: string description: either success or error

import_file: type: ImportFile structure description: full detail of import file

parameter_strategy: replace parameters:

- name: pk description: “Primary Key” required: true paramType: path

save_column_mappings (*request*, **args*, ***kwargs*)

Saves the mappings between the raw headers of an ImportFile and the destination fields in the *to_table_name* model which should be either PropertyState or TaxLotState

Valid source_type values are found in `seed.models.SEED_DATA_SOURCES`

Payload:

```

{
    "import_file_id": ID of the ImportFile record,
    "mappings": [
        {
            'from_field': 'eui', # raw field in import file

```

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```

        'from_units': 'kBtu/ft**2/year', # pint-parsable units, optional
        'to_field': 'energy_use_intensity',
        'to_field_display_name': 'Energy Use Intensity',
        'to_table_name': 'PropertyState',
    },
    {
        'from_field': 'gfa',
        'from_units': 'ft**2', # pint-parsable units, optional
        'to_field': 'gross_floor_area',
        'to_field_display_name': 'Gross Floor Area',
        'to_table_name': 'PropertyState',
    }
]
}

```

Returns:

```
{ 'status': 'success' }
```

save_raw_data (*request, *args, **kwargs*)

Starts a background task to import raw data from an ImportFile into PropertyState objects as extra_data. If the cycle_id is set to year_ending then the cycle ID will be set to the year_ending column for each record in the uploaded file. Note that the year_ending flag is not yet enabled. — type:

status: required: true type: string description: either success or error

message: required: false type: string description: error message, if any

progress_key: type: integer description: ID of background job, for retrieving job progress

parameter_strategy: replace parameters:

- name: pk description: Import file ID required: true paramType: path
- name: cycle_id description: The ID of the cycle or the string “year_ending” paramType: string required: true

start_data_quality_checks (*request, *args, **kwargs*)

Starts a background task to attempt automatic matching between buildings in an ImportFile with other existing buildings within the same org. — type:

status: required: true type: string description: either success or error

progress_key: type: integer description: ID of background job, for retrieving job progress

parameter_strategy: replace parameters:

- name: pk description: Import file ID required: true paramType: path

start_system_matching (*request, *args, **kwargs*)

Starts a background task to attempt automatic matching between buildings in an ImportFile with other existing buildings within the same org. — type:

status: required: true type: string description: either success or error

progress_key: type: integer description: ID of background job, for retrieving job progress

parameter_strategy: replace parameters:

- name: pk description: Import file ID required: true paramType: path

unmatch (*request, *args, **kwargs*)

```
class seed.data_importer.views.LocalUploaderViewSet (**kwargs)
```

```
    Bases: rest_framework.viewsets.ViewSet
```

Endpoint to upload data files to, if uploading to local file storage. Valid source_type values are found in seed.models.SEED_DATA_SOURCES

Returns:

```
{
    'success': True,
    'import_file_id': The ID of the newly-uploaded ImportFile
}
```

```
create (request, *args, **kwargs)
```

Upload a new file to an import_record. This is a multipart/form upload. — parameters:

- name: import_record description: the ID of the ImportRecord to associate this file with. required: true paramType: body
- name: source_type description: the type of file (e.g. 'Portfolio Raw' or 'Assessed Raw') required: false paramType: body
- name: source_program_version description: the version of the file as related to the source_type required: false paramType: body
- name: file or qqfile description: In-memory file object required: true paramType: Multipart

```
create_from_pm_import (request, *args, **kwargs)
```

Create an import_record from a PM import request. TODO: The properties key here is going to be an enormous amount of XML data at times, need to change this This allows the PM import workflow to be treated essentially the same as a standard file upload The process comprises the following steps:

- Get a unique file name for this portfolio manager import
-

— parameters:

- name: import_record description: the ID of the ImportRecord to associate this file with. required: true paramType: body
- name: properties description: In-memory list of properties from PM import required: true paramType: body

```
class seed.data_importer.views.MappingResultsPayloadSerializer (instance=None,
                                                                data=<class
                                                                rest_framework.fields.empty>,
                                                                **kwargs)
```

```
    Bases: rest_framework.serializers.Serializer
```

```
    filter_params = <django.contrib.postgres.fields.jsonb.JSONField>
```

```
class seed.data_importer.views.MappingResultsPropertySerializer (instance=None,
                                                                data=<class
                                                                rest_framework.fields.empty>,
                                                                **kwargs)
```

```
    Bases: rest_framework.serializers.Serializer
```

```
class seed.data_importer.views.MappingResultsResponseSerializer (instance=None,
                                                                data=<class
                                                                rest_framework.fields.empty>,
                                                                **kwargs)
```

```
    Bases: rest_framework.serializers.Serializer
```

```
class seed.data_importer.views.MappingResultsTaxLotSerializer(instance=None,
                                                             data=<class
                                                             rest_framework.fields.empty>,
                                                             **kwargs)
```

Bases: `rest_framework.serializers.Serializer`

```
seed.data_importer.views.convert_first_five_rows_to_list(header, first_five_rows)
```

Return the first five rows. This is a complicated method because it handles converting the persisted format of the first five rows into a list of dictionaries. It handles some basic logic if there are `\r\n` in the fields. Note that this method does not cover all the use cases and cannot due to the custom delimiter. See the tests in `test_views.py:test_get_first_five_rows_newline_should_work` to see the limitation

Parameters

- **header** – list, ordered list of headers as strings
- **first_five_rows** – string, long string with `###` delimiter.

Returns list

```
seed.data_importer.views.get_upload_details(request, *args, **kwargs)
```

Retrieves details about how to upload files to this instance.

Returns:

```
If S3 mode:

{
    'upload_mode': 'S3',
    'upload_complete': A url to notify that upload is complete,
    'signature': The url to post file details to for auth to upload to S3.
}

If local file system mode:

{
    'upload_mode': 'filesystem',
    'upload_path': The url to POST files to (see local_uploader)
}
```

```
seed.data_importer.views.handle_s3_upload_complete(request, *args, **kwargs)
```

Notify the system that an upload to S3 has been completed. This is a necessary step after uploading to S3 or the SEED instance will not be aware the file exists.

Valid `source_type` values are found in `seed.models.SEED_DATA_SOURCES`

GET Expects the following in the query string:

key: The full path to the file, within the S3 bucket. E.g. `data_importer/buildings.csv`

source_type: The source of the file. E.g. 'Assessed Raw' or 'Portfolio Raw'

`source_program`: Optional value from `common.mapper.Programs` `source_version`: e.g. "4.1"

`import_record`: The ID of the `ImportRecord` this file belongs to.

Returns:

```
{
    'success': True,
    'import_file_id': The ID of the newly-created ImportFile object.
}
```

`seed.data_importer.views.sign_policy_document(request, *args, **kwargs)`

Sign and return the policy document for a simple upload. <http://aws.amazon.com/articles/1434/#signyours3postform>

Payload:

```
{
  "expiration": ISO-encoded timestamp for when signature should expire,
    e.g. "2014-07-16T00:20:56.277Z",
  "conditions":
    [
      {"acl": "private"},
      {"bucket": The name of the bucket from get_upload_details},
      {"Content-Type": "text/csv"},
      {"success_action_status": "200"},
      {"key": filename of upload, prefixed with 'data_imports/',
        suffixed with a unique timestamp.
        e.g. 'data_imports/my_buildings.csv.1405469756'},
      {"x-amz-meta-category": "data_imports"},
      {"x-amz-meta-qqfilename": original filename}
    ]
}
```

Returns:

```
{
  "policy": A hash of the policy document. Using during upload to S3.
  "signature": A signature of the policy document. Also used during upload to S3.
}
```

6.4.7 Module contents

6.5 Features Package

6.5.1 Submodules

6.5.2 Module contents

6.6 Green Button Package

6.6.1 Subpackages

Green Button Tests Package

Submodules

XML Importer Tests

Module contents

6.6.2 Submodules

6.6.3 `seed.green_button.xml_importer` module

`seed.green_button.xml_importer.as_collection` (*val*)

Takes a value, returns that value if it is not a string and is an Iterable, and returns a list containing that value if it is not an Iterable or if it is a string. Returns None when *val* is None.

Parameters *val* – any value

Returns list containing *val* or *val* if it is Iterable and not a string.

`seed.green_button.xml_importer.building_data` (*xml_data*)

Extracts information about a building from a Green Button XML file.

Parameters *xml_data* – dictionary returned by `xmldict.parse` when called on the contents of a Green Button XML file

Returns dictionary

- building information for a Green Button XML file
- information describing the meter used for collection
- list of time series meter reading data

`seed.green_button.xml_importer.create_models` (*data*, *import_file*, *cycle*)

Create a `PropertyState` and a `Meter`. Then, create `TimeSeries` models for each meter reading in *data*.

Parameters

- **data** – dict, building data from a Green Button XML file from `xml_importer.building_data`
- **import_file** – `ImportFile`, reference to Green Button XML file

- **cycle** – Cycle, the cycle from which the property view will be attached

Returns PropertyState

`seed.green_button.xml_importer.energy_type(service_category)`

Returns the seed model energy type corresponding to the green button service category.

Parameters **service_category** – int that is a green button service_category (string args will be converted to integers)

Returns int in Meter.ENERGY_TYPES

`seed.green_button.xml_importer.energy_units(uom)`

Returns the seed model energy unit corresponding to the green button uom.

Parameters **uom** – int that is the green button uom number corresponding to the energy units supported by the green button schema (string args will be converted to integers)

Returns int in seed.models.ENERGY_UNITS

`seed.green_button.xml_importer.import_xml(import_file, cycle)`

Given an import_file referencing a raw Green Button XML file, extracts building and time series information from the file and constructs required database models.

Parameters

- **import_file** – a seed.models.ImportFile instance representing a Green Button XML file that has been previously uploaded
- **cycle** – which cycle to import the results

Returns PropertyView, attached to cycle

`seed.green_button.xml_importer.interval_block_data(ib_xml_data)`

Takes a dictionary containing the contents of an IntervalBlock node from a Green Button XML file and returns a dictionary containing the start_time of the time series collection, the duration of the collection, and a list of readings containing the time series data from a meter.

Parameters **ib_xml_data** – dictionary of the contents of an IntervalBlock from a Green Button XML file

Returns dictionary containing meta data about an entire collection period and a list of the specific meter readings

`seed.green_button.xml_importer.interval_data(reading_xml_data)`

Takes a dictionary representing the contents of an IntervalReading XML node and pulls out data for a single time series reading. The dictionary will be a sub-dictionary of the dictionary returned by xmldict.parse when called on a Green Button XML file. Returns a flat dictionary containing the interval data.

Parameters **reading_xml_data** – dictionary of IntervalReading XML node content in format specified by the xmldict library.

Returns dictionary representing a time series reading with keys 'cost', 'value', 'start_time', and 'duration'.

`seed.green_button.xml_importer.meter_data(raw_meter_meta)`

Takes a dictionary representing the contents of the entry node in a Green Button XML file that specifies the meta data about the meter that was used to record time series data for that file. Returns a flat dictionary containing the meter meta data.

Parameters **raw_meter_meta** – dictionary of the contents of the meter specification entry node in a Green Button XML file

Returns dictionary containing information about a meter with keys ‘currency’, ‘power_of_ten_multiplier’, and ‘uom’

6.6.4 Module contents

6.7 Landing Package

6.7.1 Subpackages

`seed.landing.management` package

Subpackages

Landing Management Package

Submodules

Update EULA

```
class seed.landing.management.commands.update_eula.Command(stdout=None,
                                                         stderr=None,
                                                         no_color=False)

    Bases: django.core.management.base.BaseCommand

    handle (*args, **options)

    help = 'Update the Terms of Service with a new HTML file'
```

Module contents

Module contents

6.7.2 Submodules

6.7.3 Forms

```
class seed.landing.forms.LoginForm(data=None, files=None, auto_id=u'id_%s', pre-
                                   fix=None, initial=None, error_class=<class
                                   'django.forms.utils.ErrorList'>, label_suffix=None,
                                   empty_permitted=False, field_order=None,
                                   use_required_attribute=None, renderer=None)

    Bases: django.forms.forms.Form

    base_fields = {'email': <django.forms.fields.EmailField object>, 'password': <django
    declared_fields = {'email': <django.forms.fields.EmailField object>, 'password': <dj
    media
```

6.7.4 Models

class seed.landing.models.**SEEDUser**(*args, **kwargs)
Bases: django.contrib.auth.base_user.AbstractBaseUser, django.contrib.auth.models.PermissionsMixin

An abstract base class implementing a fully featured User model with admin-compliant permissions.

Username, password and email are required. Other fields are optional.

exception DoesNotExist

Bases: django.core.exceptions.ObjectDoesNotExist

exception MultipleObjectsReturned

Bases: django.core.exceptions.MultipleObjectsReturned

REQUIRED_FIELDS = ['email']

USERNAME_FIELD = 'username'

accesstoken_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):  
    parent = ForeignKey(Parent, related_name='children')
```

parent.children is a ReverseManyToOneDescriptor instance.

Most of the implementation is delegated to a dynamically defined manager class built by create_forward_many_to_many_manager() defined below.

api_key

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

auditlog_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):  
    parent = ForeignKey(Parent, related_name='children')
```

parent.children is a ReverseManyToOneDescriptor instance.

Most of the implementation is delegated to a dynamically defined manager class built by create_forward_many_to_many_manager() defined below.

buildingsnapshot_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):  
    parent = ForeignKey(Parent, related_name='children')
```

parent.children is a ReverseManyToOneDescriptor instance.

Most of the implementation is delegated to a dynamically defined manager class built by create_forward_many_to_many_manager() defined below.

columnmapping_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

cycle_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

date_joined

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

default_building_detail_custom_columns

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

default_custom_columns

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

default_organization

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a `ForwardManyToOneDescriptor` instance.

default_organization_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

email

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

email_user (*subject, message, from_email=None*)

Sends an email to this User.

first_name

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

generate_key()

Creates and sets an API key for this user. Adapted from tastypie:

<https://github.com/toastdriven/django-tastypie/blob/master/tastypie/models.py#L47> # noqa

get_absolute_url()**get_full_name()**

Returns the first_name plus the last_name, with a space in between.

get_next_by_date_joined(morekwargs)****get_previous_by_date_joined(**morekwargs)****get_short_name()**

Returns the short name for the user.

grant_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

parent.children is a ReverseManyToOneDescriptor instance.

Most of the implementation is delegated to a dynamically defined manager class built by create_forward_many_to_many_manager() defined below.

greenassessmentpropertyauditlog_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

parent.children is a ReverseManyToOneDescriptor instance.

Most of the implementation is delegated to a dynamically defined manager class built by create_forward_many_to_many_manager() defined below.

groups

Accessor to the related objects manager on the forward and reverse sides of a many-to-many relation.

In the example:

```
class Pizza(Model):
    toppings = ManyToManyField(Topping, related_name='pizzas')
```

pizza.toppings and topping.pizzas are ManyToManyDescriptor instances.

Most of the implementation is delegated to a dynamically defined manager class built by create_forward_many_to_many_manager() defined below.

id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

importrecord_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

is_staff

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

last_modified_user

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

last_name

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

logentry_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

modified_import_records

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

notes

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

oauth2_provider_application

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

objects = <django.contrib.auth.models.UserManager object>

organizationuser_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

orgs

Accessor to the related objects manager on the forward and reverse sides of a many-to-many relation.

In the example:

```
class Pizza(Model):
    toppings = ManyToManyField(Topping, related_name='pizzas')
```

`pizza.toppings` and `topping.pizzas` are `ManyToManyDescriptor` instances.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

classmethod process_header_request (*request*)

Process the header string to return the user if it is a valid user.

Parameters `request` – object, request object with HTTP Authorization

Returns User object

project_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

projectpropertyview_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

projecttaxlotview_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

refreshtoken_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

save(*args, **kwargs)

Ensure that email and username are synced.

show_shared_buildings

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

user_permissions

Accessor to the related objects manager on the forward and reverse sides of a many-to-many relation.

In the example:

```
class Pizza(Model):
    toppings = ManyToManyField(Topping, related_name='pizzas')
```

`pizza.toppings` and `topping.pizzas` are `ManyToManyDescriptor` instances.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

username

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

6.7.5 Tests

```
class seed.landing.tests.UserLoginTest (methodName='runTest')
```

```
    Bases: django.test.testcases.TestCase
```

```
    setUp ()
```

```
        Hook method for setting up the test fixture before exercising it.
```

```
    test_simple_login ()
```

```
        Happy path login with no ToS.
```

6.7.6 URLs

6.7.7 Views

```
seed.landing.views.landing_page (request)
```

```
seed.landing.views.login_view (request)
```

Standard Django login, with additions: Lowercase the login email (username) Check user has accepted ToS, if any.

```
seed.landing.views.password_reset (request)
```

```
seed.landing.views.password_reset_complete (request)
```

```
seed.landing.views.password_reset_confirm (request, uidb64=None, token=None)
```

```
seed.landing.views.password_reset_done (request)
```

```
seed.landing.views.password_set (request, uidb64=None, token=None)
```

```
seed.landing.views.signup (request, uidb64=None, token=None)
```


6.7.8 Module contents

6.8 Library Packages

6.8.1 Submodules

6.8.2 Module contents

6.9 Mapping Package

6.9.1 Submodules

6.9.2 seed.mappings.mapper module

6.9.3 seed.mappings.seed_mappings module

6.9.4 Module contents

6.10 Managers Package

6.10.1 Subpackages

Manager Tests Package

Submodules

Test JSON Manager

Module contents

6.10.2 Submodules

6.10.3 JSON

```
class seed.managers.json.JsonManager
```

```
    Bases: django.db.models.manager.Manager
```

```
    get_queryset ()
```

```
        Returns a new QuerySet object. Subclasses can override this method to easily customize the behavior of the Manager.
```

```
class seed.managers.json.JsonQuerySet (model=None, query=None, using=None,  
                                       hints=None)
```

```
    Bases: django.db.models.query.QuerySet
```

```
    PRIMARY = 'extra_data'
```

```
    TABLE = 'seed_buildingsnapshot'
```

```
    json_order_by (key, order_by, order_by_rev=False, unit=None)
```

6.10.4 Module contents

6.11 Models

6.11.1 Submodules

6.11.2 AuditLog

6.11.3 Columns

```
class seed.models.columns.Column(*args, **kwargs)
    Bases: django.db.models.base.Model

    The name of a column for a given organization.

    COLUMN_EXCLUDE_FIELDS = ['id', 'source_type', 'import_file', 'analysis_state', 'data_s
    COLUMN_MERGE_FAVOR_EXISTING = 1
    COLUMN_MERGE_FAVOR_NEW = 0
    COLUMN_MERGE_PROTECTION = [(0, 'Favor New'), (1, 'Favor Existing')]
    DATABASE_COLUMNS = [{'display_name': 'PM Property ID', 'table_name': 'PropertyState'
    exception DoesNotExist
        Bases: django.core.exceptions.ObjectDoesNotExist
    EXCLUDED_API_FIELDS = ['normalized_address']
    EXCLUDED_COLUMN_RETURN_FIELDS = ['normalized_address', 'hash_object', 'source_eui_mode
    EXCLUDED_MAPPING_FIELDS = ['extra_data', 'lot_number', 'normalized_address']
    INTERNAL_TYPE_TO_DATA_TYPE = {'BooleanField': 'boolean', 'CharField': 'string', 'Dat
    exception MultipleObjectsReturned
        Bases: django.core.exceptions.MultipleObjectsReturned
    PINNED_COLUMNS = [('PropertyState', 'pm_property_id'), ('TaxLotState', 'jurisdiction_t
    QUANTITY_UNIT_COLUMNS = [('PropertyState', 'gross_floor_area'), ('PropertyState', 'occ
    SHARED_FIELD_TYPES = ((0, 'None'), (1, 'Public'))
    SHARED_NONE = 0
    SHARED_PUBLIC = 1
    UNMAPPABLE_PROPERTY_FIELDS = ['analysis_end_time', 'analysis_start_time', 'analysis_st
    UNMAPPABLE_TAXLOT_FIELDS = ['created', 'updated']

    clean()

    column_list_settings
        Accessor to the related objects manager on the forward and reverse sides of a many-to-many relation.

        In the example:
```

```
class Pizza(Model):
    toppings = ManyToManyField(Topping, related_name='pizzas')
```

`pizza.toppings` and `topping.pizzas` are `ManyToManyDescriptor` instances.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

column_name

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

columnlistsettingcolumn_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

static create_mappings (*mappings, organization, user, import_file_id=None*)

Create the mappings for an organization and a user based on a simple array of array object.

Parameters

- **mappings** – dict, dictionary containing mapping information
- **organization** – inst, organization object
- **user** – inst, User object
- **import_file_id** – integer, If passed, will cache the column mappings data into the `import_file_id` object.

:return Boolean, True is data are saved in the `ColumnMapping` table in the database

static create_mappings_from_file (*filename, organization, user, import_file_id=None*)

Load the mappings in from a file in a very specific file format. The columns in the file must be:

1. raw field
2. table name
3. field name
4. field display name
5. field data type
6. field unit type

Parameters

- **filename** – string, absolute path and name of file to load
- **organization** – id, organization id
- **user** – id, user id
- **import_file_id** – Integer, If passed, will cache the column mappings data into the `import_file_id` object.

Returns `ColumnMapping`, True

created

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

data_type

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

static delete_all (*organization*)

Delete all the columns for an organization. Note that this will invalidate all the data that is in the extra_data fields of the inventory and is irreversible.

Parameters *organization* – instance, Organization

Returns [int, int] Number of columns, column_mappings records that were deleted

display_name

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

enum

Accessor to the related object on the forward side of a many-to-one or one-to-one (via ForwardOneToOneDescriptor subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

child.parent is a ForwardManyToOneDescriptor instance.

enum_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

get_merge_protection_display (**morekwargs)**get_next_by_created** (**morekwargs)**get_next_by_modified** (**morekwargs)**get_previous_by_created** (**morekwargs)**get_previous_by_modified** (**morekwargs)**get_shared_field_type_display** (**morekwargs)**id**

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

import_file

Accessor to the related object on the forward side of a many-to-one or one-to-one (via ForwardOneToOneDescriptor subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

child.parent is a ForwardManyToOneDescriptor instance.

import_file_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

is_extra_data

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

mapped_mappings

Accessor to the related objects manager on the forward and reverse sides of a many-to-many relation.

In the example:

```
class Pizza(Model):
    toppings = ManyToManyField(Topping, related_name='pizzas')
```

`pizza.toppings` and `topping.pizzas` are `ManyToManyDescriptor` instances.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

merge_protection

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

modified

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

objects = <django.db.models.manager.Manager object>

organization

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a `ForwardManyToOneDescriptor` instance.

organization_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

raw_mappings

Accessor to the related objects manager on the forward and reverse sides of a many-to-many relation.

In the example:

```
class Pizza(Model):
    toppings = ManyToManyField(Topping, related_name='pizzas')
```

`pizza.toppings` and `topping.pizzas` are `ManyToManyDescriptor` instances.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

static retrieve_all (*org_id*, *inventory_type=None*, *only_used=False*)

Retrieve all the columns for an organization. This method will query for all the columns in the database

assigned to the organization. It will then go through and cleanup the names to ensure that there are no duplicates. The name column is used for uniquely labeling the columns for UI Grid purposes.

Parameters

- **org_id** – Organization ID
- **inventory_type** – Inventory Type (property/taxlot) from the requester. This sets the related columns if requested.
- **only_used** – View only the used columns that exist in the Column's table

Returns dict

static retrieve_all_by_tuple (*org_id*)

Return list of all columns for an organization as a tuple.

Parameters **org_id** – int, Organization ID

Returns list of tuples

static retrieve_db_field_name_for_hash_comparison ()

Names only of the columns in the database (fields only, not extra data), independent of inventory type. These fields are used for generating an MD5 hash to quickly check if the data are the same across multiple records. Note that this ignores extra_data. The result is a superset of all the fields that are used in the database across all of the inventory types of interest.

Returns list, names of columns, independent of inventory type.

static retrieve_db_field_table_and_names_from_db_tables ()

Similar to keys, except it returns a list of tuples of the columns that are in the database

:return: list of tuples

static retrieve_db_fields (*org_id*)

return the fields in the database regardless of properties or taxlots. For example, there is an address_line_1 in both the TaxLotState and the PropertyState. The command below will take the *set* to remove the duplicates.

["address_line_1", "gross_floor_area", ...] :param org_id: int, Organization ID :return: list

static retrieve_db_fields_from_db_tables ()

Return the list of database fields that are in the models. This is independent of what are in the Columns table.

Returns

static retrieve_db_types ()

return the data types for the database columns in the format of:

Example: {

 "field_name": "data_type", "field_name_2": "data_type_2", "address_line_1": "string",

}

Returns dict

static retrieve_mapping_columns (*org_id, inventory_type=None*)

Retrieve all the columns that are for mapping for an organization in a dictionary.

Parameters

- **org_id** – org_id, Organization ID

- **inventory_type** – Inventory Type (property/taxlot) from the requester. This sets the related columns if requested.

Returns list, list of dict

static retrieve_priorities (*org_id*)

Return the list of priorities for the columns

Result will be in the form of:

```
{
    'PropertyState': { u'lot_number': 'Favor New', u'owner_address': 'Favor New', u'extra_data': {
        u'data_007': 'Favor New'
    }
    'TaxLotState': { u'custom_id_1': 'Favor New', u'block_number': 'Favor New', u'extra_data': {
        u'data_008': 'Favor New'
    }
}
```

Parameters *org_id* – organization with the columns

Returns dict

static save_column_names (*model_obj*)

Save unique column names for extra_data in this organization.

This is a record of all the extra_data keys we have ever seen for a particular organization.

Parameters *model_obj* – model_obj instance (either PropertyState or TaxLotState).

shared_field_type

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

table_name

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

unit

Accessor to the related object on the forward side of a many-to-one or one-to-one (via ForwardOneToOneDescriptor subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

child.parent is a ForwardManyToOneDescriptor instance.

unit_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

units_pint

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

seed.models.columns.validate_model (sender, **kwargs)

6.11.4 Cycles

class `seed.models.cycles.Cycle` (*id, organization, user, name, start, end, created*)

Bases: `django.db.models.base.Model`

exception `DoesNotExist`

Bases: `django.core.exceptions.ObjectDoesNotExist`

exception `MultipleObjectsReturned`

Bases: `django.core.exceptions.MultipleObjectsReturned`

created

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

end

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

get_next_by_created (***morekwargs*)

get_next_by_end (***morekwargs*)

get_next_by_start (***morekwargs*)

classmethod **get_or_create_default** (*organization*)

get_previous_by_created (***morekwargs*)

get_previous_by_end (***morekwargs*)

get_previous_by_start (***morekwargs*)

id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

importfile_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

name

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

objects = `<django.db.models.manager.Manager object>`

organization

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```


`child.parent` is a `ForwardManyToOneDescriptor` instance.

organization_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

propertyview_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

start

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

taxlotproperty_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

taxlotview_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

user

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a `ForwardManyToOneDescriptor` instance.

user_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

6.11.5 Joins

6.11.6 Generic Models

class seed.models.models.**AttributeOption** (*args, **kwargs)

Bases: django.db.models.base.Model

Holds a single conflicting value for a BuildingSnapshot attribute.

exception DoesNotExist

Bases: django.core.exceptions.ObjectDoesNotExist

exception MultipleObjectsReturned

Bases: django.core.exceptions.MultipleObjectsReturned

building_variant

Accessor to the related object on the forward side of a many-to-one or one-to-one (via ForwardOneToOneDescriptor subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

child.parent is a ForwardManyToOneDescriptor instance.

building_variant_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

get_value_source_display (**kwargs)

id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

objects = <django.db.models.manager.Manager object>

value

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

value_source

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

class seed.models.models.**BuildingAttributeVariant** (*args, **kwargs)

Bases: django.db.models.base.Model

Place to keep the options of BuildingSnapshot attribute variants.

When we want to select which source's values should sit in the Canonical Building's position, we need to draw from a set of options determined during the matching phase. We should only have one 'Variant' container per field_name, per snapshot.

exception DoesNotExist

Bases: django.core.exceptions.ObjectDoesNotExist

exception MultipleObjectsReturned

Bases: django.core.exceptions.MultipleObjectsReturned

building_snapshot

Accessor to the related object on the forward side of a many-to-one or one-to-one (via ForwardOneToOneDescriptor subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

child.parent is a ForwardManyToOneDescriptor instance.

building_snapshot_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

field_name

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

objects = <django.db.models.manager.Manager object>

options

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

parent.children is a ReverseManyToOneDescriptor instance.

Most of the implementation is delegated to a dynamically defined manager class built by create_forward_many_to_many_manager() defined below.

```
class seed.models.models.Compliance(id, created, modified, compliance_type, start_date,
                                     end_date, deadline_date, project)
```

Bases: django_extensions.db.models.TimeStampedModel

exception DoesNotExist

Bases: django.core.exceptions.ObjectDoesNotExist

exception MultipleObjectsReturned

Bases: django.core.exceptions.MultipleObjectsReturned

compliance_type

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

deadline_date

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

end_date

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

get_compliance_type_display (**morekwargs)

get_next_by_created (**morekwargs)

get_next_by_modified (**morekwargs)

get_previous_by_created (**morekwargs)

get_previous_by_modified (**morekwargs)

id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

objects = <django.db.models.manager.Manager object>

project

Accessor to the related object on the forward side of a many-to-one or one-to-one (via ForwardOneToOneDescriptor subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

child.parent is a ForwardManyToOneDescriptor instance.

project_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

start_date

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

to_dict ()

class seed.models.models.CustomBuildingHeaders (*args, **kwargs)

Bases: django.db.models.base.Model

Specify custom building header mapping for display.

exception DoesNotExist

Bases: django.core.exceptions.ObjectDoesNotExist

exception MultipleObjectsReturned

Bases: django.core.exceptions.MultipleObjectsReturned

building_headers

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

objects = <seed.managers.json.JsonManager object>

super_organization

Accessor to the related object on the forward side of a many-to-one or one-to-one (via ForwardOneToOneDescriptor subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

child.parent is a ForwardManyToOneDescriptor instance.

super_organization_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

class seed.models.models.**Enum**(*args, **kwargs)

Bases: django.db.models.base.Model

Defines a set of enumerated types for a column.

exception DoesNotExist

Bases: django.core.exceptions.ObjectDoesNotExist

exception MultipleObjectsReturned

Bases: django.core.exceptions.MultipleObjectsReturned

column_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

parent.children is a ReverseManyToOneDescriptor instance.

Most of the implementation is delegated to a dynamically defined manager class built by create_forward_many_to_many_manager() defined below.

enum_name

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

enum_values

Accessor to the related objects manager on the forward and reverse sides of a many-to-many relation.

In the example:

```
class Pizza(Model):
    toppings = ManyToManyField(Topping, related_name='pizzas')
```

pizza.toppings and topping.pizzas are ManyToManyDescriptor instances.

Most of the implementation is delegated to a dynamically defined manager class built by create_forward_many_to_many_manager() defined below.

id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

objects = <django.db.models.manager.Manager object>

class seed.models.models.**EnumValue**(*args, **kwargs)

Bases: django.db.models.base.Model

Individual Enumerated Type values.

exception DoesNotExist

Bases: django.core.exceptions.ObjectDoesNotExist

exception MultipleObjectsReturned

Bases: django.core.exceptions.MultipleObjectsReturned

id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

objects = <django.db.models.manager.Manager object>

value_name

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

values

Accessor to the related objects manager on the forward and reverse sides of a many-to-many relation.

In the example:

```
class Pizza(Model):
    toppings = ManyToManyField(Topping, related_name='pizzas')
```

`pizza.toppings` and `topping.pizzas` are `ManyToManyDescriptor` instances.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

class seed.models.models.**StatusLabel** (*id, created, modified, name, color, super_organization*)

Bases: django_extensions.db.models.TimeStampedModel

BLUE_CHOICE = 'blue'

COLOR_CHOICES = (('red', u'red'), ('blue', u'blue'), ('light blue', u'light blue'), ('

DEFAULT_LABELS = ['Residential', 'Non-Residential', 'Violation', 'Compliant', 'Missing

exception DoesNotExist

Bases: django.core.exceptions.ObjectDoesNotExist

GRAY_CHOICE = 'gray'

GREEN_CHOICE = 'green'

LIGHT_BLUE_CHOICE = 'light blue'

exception MultipleObjectsReturned

Bases: django.core.exceptions.MultipleObjectsReturned

ORANGE_CHOICE = 'orange'

RED_CHOICE = 'red'

WHITE_CHOICE = 'white'

canonicalbuilding_set

Accessor to the related objects manager on the forward and reverse sides of a many-to-many relation.

In the example:

```
class Pizza(Model):
    toppings = ManyToManyField(Topping, related_name='pizzas')
```

`pizza.toppings` and `topping.pizzas` are `ManyToManyDescriptor` instances.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

color

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

get_color_display (**morekwargs)

get_next_by_created (**morekwargs)

get_next_by_modified (**morekwargs)

get_previous_by_created (**morekwargs)

get_previous_by_modified (**morekwargs)

id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

name

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

objects = <django.db.models.manager.Manager object>

property_set

Accessor to the related objects manager on the forward and reverse sides of a many-to-many relation.

In the example:

```
class Pizza(Model):
    toppings = ManyToManyField(Topping, related_name='pizzas')
```

`pizza.toppings` and `topping.pizzas` are `ManyToManyDescriptor` instances.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

rule_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

super_organization

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a `ForwardManyToOneDescriptor` instance.

super_organization_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

taxlot_set

Accessor to the related objects manager on the forward and reverse sides of a many-to-many relation.

In the example:

```
class Pizza(Model):
    toppings = ManyToManyField(Topping, related_name='pizzas')
```

`pizza.toppings` and `topping.pizzas` are `ManyToManyDescriptor` instances.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

to_dict()

```
class seed.models.models.Unit(*args, **kwargs)
```

Bases: `django.db.models.base.Model`

Unit of measure for a Column Value.

exception DoesNotExist

Bases: `django.core.exceptions.ObjectDoesNotExist`

exception MultipleObjectsReturned

Bases: `django.core.exceptions.MultipleObjectsReturned`

column_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

get_unit_type_display(morekwargs)****id**

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

objects = <django.db.models.manager.Manager object>

unit_name

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

unit_type

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

6.11.7 Projects

```
class seed.models.projects.Project(id, created, modified, name, slug, owner, last_modified_by,
                                   super_organization, description, status)
```

Bases: `django_extensions.db.models.TimeStampedModel`

ACTIVE_STATUS = 1

exception DoesNotExist

Bases: `django.core.exceptions.ObjectDoesNotExist`

INACTIVE_STATUS = 0

exception MultipleObjectsReturned

Bases: `django.core.exceptions.MultipleObjectsReturned`

PROJECT_NAME_MAX_LENGTH = 255

STATUS_CHOICES = ((0, u'Inactive'), (1, u'Active'))

adding_buildings_status_percentage_cache_key

compliance_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

description

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

get_compliance()

get_next_by_created(morekwargs)**

get_next_by_modified(morekwargs)**

get_previous_by_created(morekwargs)**

get_previous_by_modified(morekwargs)**

get_status_display(morekwargs)**

has_compliance

id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

last_modified_by

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a `ForwardManyToOneDescriptor` instance.

last_modified_by_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

name

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

objects = <django.db.models.manager.Manager object>

organization

For compliance with organization names in new data model.

owner

Accessor to the related object on the forward side of a many-to-one or one-to-one (via ForwardOneToOneDescriptor subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

child.parent is a ForwardManyToOneDescriptor instance.

owner_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

project_property_views

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

parent.children is a ReverseManyToOneDescriptor instance.

Most of the implementation is delegated to a dynamically defined manager class built by create_forward_many_to_many_manager() defined below.

project_taxlot_views

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

parent.children is a ReverseManyToOneDescriptor instance.

Most of the implementation is delegated to a dynamically defined manager class built by create_forward_many_to_many_manager() defined below.

property_count**property_views**

Accessor to the related objects manager on the forward and reverse sides of a many-to-many relation.

In the example:

```
class Pizza(Model):
    toppings = ManyToManyField(Topping, related_name='pizzas')
```

pizza.toppings and topping.pizzas are ManyToManyDescriptor instances.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

removing_buildings_status_percentage_cache_key

slug

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

status

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

super_organization

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a `ForwardManyToOneDescriptor` instance.

super_organization_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

taxlot_count

taxlot_views

Accessor to the related objects manager on the forward and reverse sides of a many-to-many relation.

In the example:

```
class Pizza(Model):
    toppings = ManyToManyField(Topping, related_name='pizzas')
```

`pizza.toppings` and `topping.pizzas` are `ManyToManyDescriptor` instances.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

to_dict()

```
class seed.models.projects.ProjectPropertyView(id, created, modified, property_view,
                                              project, compliant, approved_date, ap-
                                              prover)
```

Bases: `django_extensions.db.models.TimeStampedModel`

exception DoesNotExist

Bases: `django.core.exceptions.ObjectDoesNotExist`

exception MultipleObjectsReturned

Bases: `django.core.exceptions.MultipleObjectsReturned`

approved_date

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

approver

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a `ForwardManyToOneDescriptor` instance.

approver_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

compliant

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

get_next_by_created (***morekwargs*)

get_next_by_modified (***morekwargs*)

get_previous_by_created (***morekwargs*)

get_previous_by_modified (***morekwargs*)

id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

objects = `<django.db.models.manager.Manager object>`

project

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a `ForwardManyToOneDescriptor` instance.

project_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

property_view

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a `ForwardManyToOneDescriptor` instance.

property_view_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

```
class seed.models.projects.ProjectTaxLotView(id, created, modified, taxlot_view, project,
                                              compliant, approved_date, approver)
    Bases: django_extensions.db.models.TimeStampedModel
```

exception DoesNotExist

Bases: `django.core.exceptions.ObjectDoesNotExist`

exception MultipleObjectsReturned

Bases: `django.core.exceptions.MultipleObjectsReturned`

approved_date

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

approver

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a `ForwardManyToOneDescriptor` instance.

approver_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

compliant

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

get_next_by_created (***morekwargs*)**get_next_by_modified** (***morekwargs*)**get_previous_by_created** (***morekwargs*)**get_previous_by_modified** (***morekwargs*)**id**

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

objects = `<django.db.models.manager.Manager object>`

project

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a `ForwardManyToOneDescriptor` instance.

project_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

taxlot_view

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a `ForwardManyToOneDescriptor` instance.

taxlot_view_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

6.11.8 Properties

class `seed.models.properties.Property(*args, **kwargs)`

Bases: `django.db.models.base.Model`

The Property is the parent property that ties together all the views of the property. For example, if a building has multiple changes overtime, then this Property will always remain the same. The PropertyView will point to the unchanged property as the PropertyState and Property view are updated.

If the property can be a campus. The property can also reference a parent property.

exception DoesNotExist

Bases: `django.core.exceptions.ObjectDoesNotExist`

exception MultipleObjectsReturned

Bases: `django.core.exceptions.MultipleObjectsReturned`

campus

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

created

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

get_next_by_created (***morekwargs*)

get_next_by_updated (***morekwargs*)

get_previous_by_created (***morekwargs*)

get_previous_by_updated (***morekwargs*)

id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

labels

Accessor to the related objects manager on the forward and reverse sides of a many-to-many relation.

In the example:

```
class Pizza(Model):
    toppings = ManyToManyField(Topping, related_name='pizzas')
```

`pizza.toppings` and `topping.pizzas` are `ManyToManyDescriptor` instances.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

objects = `<django.db.models.manager.Manager object>`

organization

Accessor to the related object on the forward side of a many-to-one or one-to-one (via ForwardOneToOneDescriptor subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

child.parent is a ForwardManyToOneDescriptor instance.

organization_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

parent_property

Accessor to the related object on the forward side of a many-to-one or one-to-one (via ForwardOneToOneDescriptor subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

child.parent is a ForwardManyToOneDescriptor instance.

parent_property_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

property_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

parent.children is a ReverseManyToOneDescriptor instance.

Most of the implementation is delegated to a dynamically defined manager class built by create_forward_many_to_many_manager() defined below.

updated

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

views

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

parent.children is a ReverseManyToOneDescriptor instance.

Most of the implementation is delegated to a dynamically defined manager class built by create_forward_many_to_many_manager() defined below.

```
class seed.models.properties.PropertyAuditLog(id, organization, parent1, parent2, parent_state1, parent_state2, state, view, name, description, import_filename, record_type, created)
```

Bases: `django.db.models.base.Model`

exception DoesNotExist

Bases: `django.core.exceptions.ObjectDoesNotExist`

exception MultipleObjectsReturned

Bases: `django.core.exceptions.MultipleObjectsReturned`

created

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

description

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

get_record_type_display (***morekwargs*)

id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

import_filename

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

name

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

objects = `<django.db.models.manager.Manager object>`

organization

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):  
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a `ForwardManyToOneDescriptor` instance.

organization_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

parent1

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):  
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a `ForwardManyToOneDescriptor` instance.

parent1_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

parent2

Accessor to the related object on the forward side of a many-to-one or one-to-one (via ForwardOneToOneDescriptor subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

child.parent is a ForwardManyToOneDescriptor instance.

parent2_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

parent_state1

Accessor to the related object on the forward side of a many-to-one or one-to-one (via ForwardOneToOneDescriptor subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

child.parent is a ForwardManyToOneDescriptor instance.

parent_state1_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

parent_state2

Accessor to the related object on the forward side of a many-to-one or one-to-one (via ForwardOneToOneDescriptor subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

child.parent is a ForwardManyToOneDescriptor instance.

parent_state2_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

propertyauditlog_parent1

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

parent.children is a ReverseManyToOneDescriptor instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

propertyauditlog_parent2

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

record_type

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

state

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a `ForwardManyToOneDescriptor` instance.

state_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

view

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a `ForwardManyToOneDescriptor` instance.

view_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

```
class seed.models.properties.PropertyState(*args, **kwargs)
```

Bases: `django.db.models.base.Model`

Store a single property. This contains all the state information about the property

```
ANALYSIS_STATE_COMPLETED = 2
```

```
ANALYSIS_STATE_FAILED = 3
```

```
ANALYSIS_STATE_NOT_STARTED = 0
```

```
ANALYSIS_STATE_QUEUED = 4
```

```
ANALYSIS_STATE_STARTED = 1
```

```
ANALYSIS_STATE_TYPES = ((0, u'Not Started'), (4, u'Queued'), (1, u'Started'), (2, u'Corrupted'))
```

exception DoesNotExist

Bases: `django.core.exceptions.ObjectDoesNotExist`

exception MultipleObjectsReturned

Bases: `django.core.exceptions.MultipleObjectsReturned`

address_line_1

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

address_line_2

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

analysis_end_time

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

analysis_start_time

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

analysis_state

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

analysis_state_message

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

building_certification

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

building_count

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

building_files

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

city

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

clean()**conditioned_floor_area**

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

conditioned_floor_area_orig

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

classmethod coparent (*state_id*)

Return the coparent of the PropertyState. This will query the PropertyAuditLog table to determine if there is a coparent and return it if it is found. The state_id needs to be the base ID of when the original record was imported

Parameters *state_id* – integer, state id to find coparent.

Returns dict

custom_id_1

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

data_state

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

energy_alerts

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

energy_score

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

extra_data

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

generation_date

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

get_analysis_state_display (***morekwargs*)**get_data_state_display** (***morekwargs*)**get_merge_state_display** (***morekwargs*)**gross_floor_area**

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

gross_floor_area_orig

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

hash_object

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

history ()

Return the history of the property state by parsing through the auditlog. Returns only the ids of the parent states and some descriptions.

master // parent1 parent2

In the records, parent2 is most recent, so make sure to navigate parent two first since we are returning the data in reverse over (that is most recent changes first)

Returns list, history as a list, and the master record

home_energy_score_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

import_file

Accessor to the related object on the forward side of a many-to-one or one-to-one (via ForwardOneToOneDescriptor subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

child.parent is a ForwardManyToOneDescriptor instance.

import_file_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

jurisdiction_property_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

latitude

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

longitude

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

lot_number

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

measure_set

Accessor to the related objects manager on the forward and reverse sides of a many-to-many relation.

In the example:

```
class Pizza(Model):
    toppings = ManyToManyField(Topping, related_name='pizzas')
```

pizza.toppings and topping.pizzas are ManyToManyDescriptor instances.

Most of the implementation is delegated to a dynamically defined manager class built by create_forward_many_to_many_manager() defined below.

measures

Accessor to the related objects manager on the forward and reverse sides of a many-to-many relation.

In the example:

```
class Pizza(Model):
    toppings = ManyToManyField(Topping, related_name='pizzas')
```

`pizza.toppings` and `topping.pizzas` are `ManyToManyDescriptor` instances.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

classmethod `merge_relationships` (*merged_state, state1, state2*)

Merge together the old relationships with the new.

`merge_state`

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

`normalized_address`

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

`objects` = `<django.db.models.manager.Manager object>`

`occupied_floor_area`

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

`occupied_floor_area_orig`

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

`organization`

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a `ForwardManyToOneDescriptor` instance.

`organization_id`

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

`owner`

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

`owner_address`

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

`owner_city_state`

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

`owner_email`

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

`owner_postal_code`

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

owner_telephone

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

parent_state1

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

parent_state2

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

pm_parent_property_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

pm_property_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

postal_code

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

promote (*cycle*, *property_id=None*)

Promote the `PropertyState` to the view table for the given cycle

Args: `cycle`: Cycle to assign the view `property_id`: Optional ID of a canonical property model object to retain instead of creating a new property

Returns: The resulting `PropertyView` (note that it is not returning the `PropertyState`)

property_name

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

property_notes

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

property_type

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

propertyauditlog_state

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

propertymeasure_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

propertyview_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

recent_sale_date

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

release_date

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

save(*args, **kwargs)**scenarios**

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

simulation

Accessor to the related object on the reverse side of a one-to-one relation.

In the example:

```
class Restaurant(Model):
    place = OneToOneField(Place, related_name='restaurant')
```

`place.restaurant` is a `ReverseOneToOneDescriptor` instance.

site_eui

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

site_eui_modeled

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

site_eui_modeled_orig

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

site_eui_orig

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

site_eui_weather_normalized

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

site_eui_weather_normalized_orig

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

source_eui

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

source_eui_modeled

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

source_eui_modeled_orig

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

source_eui_orig

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

source_eui_weather_normalized

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

source_eui_weather_normalized_orig

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

source_type

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

space_alerts

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

state

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

to_dict (*fields=None, include_related_data=True*)

Returns a dict version of the PropertyState, either with all fields or masked to just those requested.

ubid

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

use_description

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

year_built

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

year_ending

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

class seed.models.properties.**PropertyView** (*args, **kwargs)

Bases: django.db.models.base.Model

Similar to the old world of canonical building.

A PropertyView contains a reference to a property (which should not change) and to a cycle (time period), and a state (characteristics).

exception DoesNotExist

Bases: django.core.exceptions.ObjectDoesNotExist

exception MultipleObjectsReturned

Bases: django.core.exceptions.MultipleObjectsReturned

cycle

Accessor to the related object on the forward side of a many-to-one or one-to-one (via ForwardOneToOneDescriptor subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

child.parent is a ForwardManyToOneDescriptor instance.

cycle_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

gapauditlog_view

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

greenassessmentproperty_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

import_filename

Get the import file name form the audit logs

initialize_audit_logs (***kwargs*)

meters

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

notes

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

objects = <django.db.models.manager.Manager object>

project_property_views

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

project_set

Accessor to the related objects manager on the forward and reverse sides of a many-to-many relation.

In the example:

```
class Pizza(Model):
    toppings = ManyToManyField(Topping, related_name='pizzas')
```

`pizza.toppings` and `topping.pizzas` are `ManyToManyDescriptor` instances.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

property

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a `ForwardManyToOneDescriptor` instance.

property_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

propertyauditlog_view

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

state

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a `ForwardManyToOneDescriptor` instance.

state_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

tax_lot_states()

Return a list of TaxLotStates associated with this PropertyView and Cycle

Returns list of TaxLotStates

tax_lot_views()

Return a list of TaxLotViews that are associated with this PropertyView and Cycle

Returns list of TaxLotViews

taxlotproperty_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

parent.children is a ReverseManyToOneDescriptor instance.

Most of the implementation is delegated to a dynamically defined manager class built by create_forward_many_to_many_manager() defined below.

seed.models.properties.post_save_property_view(sender, **kwargs)

When changing/saving the PropertyView, go ahead and touch the Property (if linked) so that the record receives an updated datetime

seed.models.properties.pre_delete_state(sender, **kwargs)

6.11.9 TaxLots

class seed.models.tax_lots.TaxLot(id, organization, created, updated)

Bases: django.db.models.base.Model

exception DoesNotExist

Bases: django.core.exceptions.ObjectDoesNotExist

exception MultipleObjectsReturned

Bases: django.core.exceptions.MultipleObjectsReturned

created

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

get_next_by_created(**kwargs)

get_next_by_updated(**kwargs)

get_previous_by_created(**kwargs)

get_previous_by_updated(**kwargs)

id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

labels

Accessor to the related objects manager on the forward and reverse sides of a many-to-many relation.

In the example:

```
class Pizza(Model):
    toppings = ManyToManyField(Topping, related_name='pizzas')
```

`pizza.toppings` and `topping.pizzas` are `ManyToManyDescriptor` instances.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

objects = <django.db.models.manager.Manager object>

organization

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a `ForwardManyToOneDescriptor` instance.

organization_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

updated

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

views

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

```
class seed.models.tax_lots.TaxLotAuditLog(id, organization, parent1, parent2, parent_state1, parent_state2, state, view, name, description, import_filename, record_type, created)
```

Bases: `django.db.models.base.Model`

exception DoesNotExist

Bases: `django.core.exceptions.ObjectDoesNotExist`

exception MultipleObjectsReturned

Bases: `django.core.exceptions.MultipleObjectsReturned`

created

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

description

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

get_record_type_display (***kwargs*)**id**

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

import_filename

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

name

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

objects = <django.db.models.manager.Manager object>

organization

Accessor to the related object on the forward side of a many-to-one or one-to-one (via ForwardOneToOneDescriptor subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

child.parent is a ForwardManyToOneDescriptor instance.

organization_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

parent1

Accessor to the related object on the forward side of a many-to-one or one-to-one (via ForwardOneToOneDescriptor subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

child.parent is a ForwardManyToOneDescriptor instance.

parent1_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

parent2

Accessor to the related object on the forward side of a many-to-one or one-to-one (via ForwardOneToOneDescriptor subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

child.parent is a ForwardManyToOneDescriptor instance.

parent2_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

parent_state1

Accessor to the related object on the forward side of a many-to-one or one-to-one (via ForwardOneToOneDescriptor subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

child.parent is a ForwardManyToOneDescriptor instance.

parent_state1_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

parent_state2

Accessor to the related object on the forward side of a many-to-one or one-to-one (via ForwardOneToOneDescriptor subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

child.parent is a ForwardManyToOneDescriptor instance.

parent_state2_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

record_type

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

state

Accessor to the related object on the forward side of a many-to-one or one-to-one (via ForwardOneToOneDescriptor subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

child.parent is a ForwardManyToOneDescriptor instance.

state_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

taxlotauditlog_parent1

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```


`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

taxlotauditlog_parent2

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

view

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a `ForwardManyToOneDescriptor` instance.

view_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

```
class seed.models.tax_lots.TaxLotState(id, import_file, organization, data_state,
                                     merge_state, custom_id_1, jurisdiction_tax_lot_id,
                                     block_number, district, address_line_1, ad-
                                     dress_line_2, normalized_address, city, state,
                                     postal_code, number_properties, extra_data,
                                     hash_object)
```

Bases: `django.db.models.base.Model`

exception DoesNotExist

Bases: `django.core.exceptions.ObjectDoesNotExist`

exception MultipleObjectsReturned

Bases: `django.core.exceptions.MultipleObjectsReturned`

address_line_1

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

address_line_2

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

block_number

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

city

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

classmethod coparent (*state_id*)

Return the coparent of the TaxLotState. This will query the TaxLotAuditLog table to determine if there is a coparent and return it if it is found. The *state_id* needs to be the base ID of when the original record was imported

Parameters *state_id* – integer, state id to find coparent.

Returns dict

custom_id_1

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

data_state

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

district

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

extra_data

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

get_data_state_display (***morekwargs*)**get_merge_state_display** (***morekwargs*)**hash_object**

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

history ()

Return the history of the taxlot state by parsing through the auditlog. Returns only the ids of the parent states and some descriptions.

master // parent1 parent2

In the records, parent2 is most recent, so make sure to navigate parent two first since we are returning the data in reverse over (that is most recent changes first)

Returns list, history as a list, and the master record

id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

import_file

Accessor to the related object on the forward side of a many-to-one or one-to-one (via ForwardOneToOneDescriptor subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a ForwardManyToOneDescriptor instance.

import_file_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

jurisdiction_tax_lot_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

classmethod merge_relationships (*merged_state, state1, state2*)

Stub to implement if merging TaxLotState relationships is needed

merge_state

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

normalized_address

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

number_properties

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

objects = <django.db.models.manager.Manager object>**organization**

Accessor to the related object on the forward side of a many-to-one or one-to-one (via ForwardOneToOneDescriptor subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

child.parent is a ForwardManyToOneDescriptor instance.

organization_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

postal_code

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

promote (*cycle*)

Promote the TaxLotState to the view table for the given cycle

Args: cycle: Cycle to assign the view

Returns: The resulting TaxLotView (note that it is not returning the TaxLotState)

save (**args, **kwargs*)**state**

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

taxlotauditlog_parent_state1

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

parent.children is a ReverseManyToOneDescriptor instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

taxlotauditlog_parent_state2

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

taxlotauditlog_state

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

taxlotview_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

to_dict (*fields=None, include_related_data=True*)

Returns a dict version of the `TaxLotState`, either with all fields or masked to just those requested.

class `seed.models.tax_lots.TaxLotView` (*id, taxlot, state, cycle*)

Bases: `django.db.models.base.Model`

exception DoesNotExist

Bases: `django.core.exceptions.ObjectDoesNotExist`

exception MultipleObjectsReturned

Bases: `django.core.exceptions.MultipleObjectsReturned`

cycle

Accessor to the related object on the forward side of a many-to-one or one-to-one (via `ForwardOneToOneDescriptor` subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`child.parent` is a `ForwardManyToOneDescriptor` instance.

cycle_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

import_filename

Get the import file name form the audit logs

initialize_audit_logs (***kwargs*)

notes

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

objects = <django.db.models.manager.Manager object>

project_set

Accessor to the related objects manager on the forward and reverse sides of a many-to-many relation.

In the example:

```
class Pizza(Model):
    toppings = ManyToManyField(Topping, related_name='pizzas')
```

`pizza.toppings` and `topping.pizzas` are `ManyToManyDescriptor` instances.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

project_taxlot_views

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

`parent.children` is a `ReverseManyToOneDescriptor` instance.

Most of the implementation is delegated to a dynamically defined manager class built by `create_forward_many_to_many_manager()` defined below.

property_states ()

Return a list of `PropertyStates` associated with this `TaxLotView` and `Cycle`

Returns list of `PropertyStates`

property_views ()

Return a list of `PropertyViews` that are associated with this `TaxLotView` and `Cycle`

Returns list of PropertyViews

state

Accessor to the related object on the forward side of a many-to-one or one-to-one (via ForwardOneToOneDescriptor subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

child.parent is a ForwardManyToOneDescriptor instance.

state_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

taxlot

Accessor to the related object on the forward side of a many-to-one or one-to-one (via ForwardOneToOneDescriptor subclass) relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

child.parent is a ForwardManyToOneDescriptor instance.

taxlot_id

A wrapper for a deferred-loading field. When the value is read from this object the first time, the query is executed.

taxlotauditlog_view

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

parent.children is a ReverseManyToOneDescriptor instance.

Most of the implementation is delegated to a dynamically defined manager class built by create_forward_many_to_many_manager() defined below.

taxlotproperty_set

Accessor to the related objects manager on the reverse side of a many-to-one relation.

In the example:

```
class Child(Model):
    parent = ForeignKey(Parent, related_name='children')
```

parent.children is a ReverseManyToOneDescriptor instance.

Most of the implementation is delegated to a dynamically defined manager class built by create_forward_many_to_many_manager() defined below.

seed.models.taxLots.post_save_taxlot_view(sender, **kwargs)

When changing/saving the TaxLotView, go ahead and touch the TaxLot (if linked) so that the record receives an updated datetime

6.11.10 Module contents

6.12 Public Package

6.12.1 Submodules

6.12.2 Models

6.12.3 Module contents

6.13 SEED Package

6.13.1 Subpackages

Management Package

Subpackages

Management Packages

Submodules

S3

Module contents

Module contents

Templatetags Package

Submodules

Breadcrumbs

```
class seed.templatetags.breadcrumbs.BreadcrumbNode (vars, render_func=<function create_crumb>)
```

```
    Bases: django.template.base.Node
```

```
    render (context)
```

```
class seed.templatetags.breadcrumbs.UrlBreadcrumbNode (title, url_node, render_func=<function create_crumb>)
```

```
    Bases: django.template.base.Node
```

```
    render (context)
```

```
seed.templatetags.breadcrumbs.breadcrumb (parser, token)
```

Section author: Andriy Drozdyuk

Renders the breadcrumb.

Example:

```
{% breadcrumb "Title of breadcrumb" url_var %}
{% breadcrumb context_var url_var %}
{% breadcrumb "Just the title" %}
{% breadcrumb just_context_var %}
```

Parameters:

```
First parameter is the title of the crumb
Second (optional) parameter is the url variable to link to, produced by url tag, ↪
i.e.:
    {% url "person_detail" object.id as person_url %}
    then:
    {% breadcrumb person.name person_url %}
```

`seed.templatetags.breadcrumbs.breadcrumb_root` (*parser, token*)

Section author: Andriy Drozdyuk

Renders the breadcrumb.

Examples:

```
{% breadcrumb "Title of breadcrumb" url_var %}
{% breadcrumb context_var url_var %}
{% breadcrumb "Just the title" %}
{% breadcrumb just_context_var %}
```

Parameters:

```
First parameter is the title of the crumb,
Second (optional) parameter is the url variable to link to, produced by url tag, ↪
i.e.:
    {% url "person_detail/" object.id as person_url %}
    then:
    {% breadcrumb person.name person_url %}
```

`seed.templatetags.breadcrumbs.breadcrumb_url` (*parser, token*)

Same as breadcrumb but instead of url context variable takes in all the arguments URL tag takes.

```
{% breadcrumb "Title of breadcrumb" person_detail person.id %}
{% breadcrumb person.name person_detail person.id %}
```

`seed.templatetags.breadcrumbs.breadcrumb_url_root` (*parser, token*)

Same as breadcrumb but instead of url context variable takes in all the arguments URL tag takes.

```
{% breadcrumb "Title of breadcrumb" person_detail person.id %}
{% breadcrumb person.name person_detail person.id %}
```

`seed.templatetags.breadcrumbs.create_crumb` (*title, url=None*)

Helper function

`seed.templatetags.breadcrumbs.create_crumb_first` (*title, url=None*)

Helper function

Test Helpers Package

Subpackages

Test Helper Factor Package

Subpackages

Test Helper Factory Lib Package

Submodules

Chomsky

```
seed.test_helpers.factory.lib.chomsky.generate_chomsky(times=5, line_length=72)
```

Submodules

Helpers

```
class seed.test_helpers.factory.helpers.DjangoFunctionalFactory
```

```
    classmethod invalid_test_cc_number()
    classmethod rand_bool()
    classmethod rand_city()
    classmethod rand_city_suffix()
    classmethod rand_currency(start=0, end=100)
    classmethod rand_date(start_year=1900, end_year=2011)
    classmethod rand_domain()
    classmethod rand_email()
    classmethod rand_float(start=0, end=100)
    classmethod rand_int(start=0, end=100)
    classmethod rand_name()
    classmethod rand_phone()
    classmethod rand_plant_name()
    classmethod rand_str(length=None)
    classmethod rand_street_address()
    classmethod rand_street_suffix()
    classmethod random_conversation(paragraphs=3)
    classmethod test_cc_number(valid=True)
    classmethod valid_test_cc_number()
```

Module contents

Tests Package

Submodules

Admin Views

```
class seed.tests.test_admin_views.AdminViewsTest (methodName='runTest')
    Bases: django.test.testcases.TestCase

    setUp()
        Hook method for setting up the test fixture before exercising it.

    test_add_org()
        Happy path test for creating a new org.

    test_add_org_dupe()
        Trying to create an org with a dupe name fails.

    test_add_user_existing_org()
        Test creating a new user, adding them to an existing org in the process.

    test_add_user_new_org()
        Create a new user and a new org at the same time.

    test_add_user_no_org()
        Should not be able to create a new user without either selecting or creating an org at the same time.

    test_signup_process()
        Simulates the entire new user signup process, from initial account creation by an admin to receiving the
        signup email to confirming the account and setting a password.

    test_signup_process_force_lowercase_email()
        Simulates the signup and login forcing login username to lowercase
```

Decorators

```
class seed.tests.test_decorators.ClassDecoratorTests (methodName='runTest')
    Bases: django.test.testcases.TestCase

    test_ajax_request_class_dict()

    test_ajax_request_class_dict_status_error()

    test_ajax_request_class_dict_status_false()

    test_ajax_request_class_format_type()

    test_require_organization_id_class_no_org_id()

    test_require_organization_id_class_org_id()

    test_require_organization_id_class_org_id_not_int()

class seed.tests.test_decorators.RequireOrganizationIDTests (methodName='runTest')
    Bases: django.test.testcases.TestCase

    setUp()
        Hook method for setting up the test fixture before exercising it.
```

```

test_require_organization_id_fail_no_key()
test_require_organization_id_fail_not_numeric()
test_require_organization_id_success_integer()
test_require_organization_id_success_string()
class seed.tests.test_decorators.TestDecorators (methodName='runTest')
    Bases: django.test.testcases.TestCase
    Tests for locking tasks and reporting progress.
    locked = 1
    pk = 34
    setUp()
        Hook method for setting up the test fixture before exercising it.
    test_get_prog_key()
        We format our cache key properly.
    test_increment_cache()
        Sum our progress by increments properly.
    test_locking()
        Make sure we indicate we're locked if and only if we're inside the function.
    test_locking_w_exception()
        Make sure we release our lock if we have had an exception.
    test_progress()
        When a task finishes, it increments the progress counter properly.
    unlocked = 0
exception seed.tests.test_decorators.TestException
    Bases: exceptions.Exception

```

Exporters

Models

Tasks

```

class seed.tests.test_tasks.TestTasks (methodName='runTest')
    Bases: django.test.testcases.TestCase
    Tests for dealing with SEED related tasks.
    setUp()
        Hook method for setting up the test fixture before exercising it.
    test_delete_organization()
    test_delete_organization_doesnt_delete_user_if_multiple_memberships()
        Deleting an org should not delete the orgs users if the user belongs to many orgs.

```

Views

```
class seed.tests.test_views.GetDatasetsViewsTests (methodName='runTest')
    Bases: django.test.testcases.TestCase

    setUp()
        Hook method for setting up the test fixture before exercising it.

    test_delete_dataset()

    test_get_dataset()

    test_get_datasets()

    test_get_datasets_count()

    test_get_datasets_count_invalid()

    test_update_dataset()

class seed.tests.test_views.ImportFileViewsTests (methodName='runTest')
    Bases: django.test.testcases.TestCase

    setUp()
        Hook method for setting up the test fixture before exercising it.

    test_delete_file()

    test_get_import_file()

    test_get_matching_results()

class seed.tests.test_views.InventoryViewTests (methodName='runTest')
    Bases: seed.tests.util.DeleteModelsTestCase

    setUp()
        Hook method for setting up the test fixture before exercising it.

    test_get_cycles()

    test_get_properties()

    test_get_properties_cycle_id()

    test_get_properties_empty_page()

    test_get_properties_page_not_an_integer()

    test_get_properties_pint_fields()

    test_get_properties_property_extra_data()

    test_get_properties_taxlot_extra_data()

    test_get_properties_with_taxlots()

    test_get_property()

    test_get_property_columns()

    test_get_property_multiple_taxlots()

    test_get_taxlot()

    test_get_taxlot_columns()

    test_get_taxlots()

    test_get_taxlots_empty_page()
```

```

    test_get_taxlots_extra_data()
    test_get_taxlots_multiple_taxlots()
    test_get_taxlots_no_cycle_id()
    test_get_taxlots_page_not_an_integer()
class seed.tests.test_views.MainViewTests (methodName='runTest')
    Bases: django.test.testcases.TestCase
    setUp()
        Hook method for setting up the test fixture before exercising it.
    test_home()
class seed.tests.test_views.TestMCMViews (methodName='runTest')
    Bases: django.test.testcases.TestCase
    assert_expected_mappings (actual, expected)
        For each k,v pair of form column_name: [dest_col, confidence] in actual, assert that expected contains the
        same column_name and dest_col mapping.
    expected_mappings = {u'address': [u'owner_address', 70], u'building id': [u'Building
    raw_columns_expected = {u'raw_columns': [u'name', u'address', u'year built', u'buildi
    setUp()
        Hook method for setting up the test fixture before exercising it.
    test_create_dataset()
        tests the create_dataset view, allows duplicate dataset names
    test_get_column_mapping_suggestions()
    test_get_column_mapping_suggestions_pm_file()
    test_get_column_mapping_suggestions_with_columns()
    test_get_raw_column_names()
        Good case for get_raw_column_names.
    test_progress()
        Make sure we retrieve data from cache properly.
    test_save_column_mappings()
    test_save_column_mappings_idempotent()
        We need to make successive calls to save_column_mappings.

```

Tests

```

class seed.tests.tests.ComplianceTestCase (methodName='runTest')
    Bases: django.test.testcases.TestCase
    test_basic_compliance_creation()
class seed.tests.tests.ProjectTestCase (methodName='runTest')
    Bases: django.test.testcases.TestCase
    test_basic_project_creation()
class seed.tests.tests.UtilsTests (methodName='runTest')
    Bases: django.test.testcases.TestCase

```

setUp()

Hook method for setting up the test fixture before exercising it.

test_get_buildings_count_for_user()

Utils

class seed.tests.util.**DataMappingBaseTestCase** (*methodName='runTest'*)

Bases: *seed.tests.util.DeleteModelsTestCase*

Base Test Case Class to handle data import

create_import_file (*user, org, cycle, source_type=0, data_state=1*)

set_up (*import_file_source_type*)

class seed.tests.util.**DeleteModelsTestCase** (*methodName='runTest'*)

Bases: *django.test.testcases.TestCase*

setUp()

Hook method for setting up the test fixture before exercising it.

tearDown()

Hook method for deconstructing the test fixture after testing it.

class seed.tests.util.**FakeClient**

Bases: *object*

An extremely light-weight test client.

get (*view_func, data, headers=None, **kwargs*)

post (*view_func, data, headers=None, **kwargs*)

class seed.tests.util.**FakeRequest** (*data=None, headers=None, user=None, method='POST', **kwargs*)

Bases: *object*

A simple request stub.

GET = {}

META = {'REMOTE_ADDR': '127.0.0.1'}

POST = {}

body = None

path = 'fake_login_path'

6.13.2 Inheritance

6.13.3 Submodules

6.13.4 Decorators

seed.decorators.**DecoratorMixin** (*decorator*)

Converts a decorator written for a function view into a mixin for a class-based view.

Example:

```

LoginRequiredMixin = DecoratorMixin(login_required)
class MyView(LoginRequiredMixin):
    pass

class SomeView(DecoratorMixin(some_decorator), DecoratorMixin(something_else)):
    pass

```

`seed.decorators.ajax_request` (*func*)

Copied from django-annoying, with a small modification. Now we also check for ‘status’ or ‘success’ keys and return correct status codes

If view returned serializable dict, returns response in a format requested by HTTP_ACCEPT header. Defaults to JSON if none requested or match.

Currently supports JSON or YAML (if installed), but can easily be extended.

Example:

```

@ajax_request
def my_view(request):
    news = News.objects.all()
    news_titles = [entry.title for entry in news]
    return { 'news_titles': news_titles }

```

`seed.decorators.ajax_request_class` (*func*)

- Copied from django-annoying, with a small modification. Now we also check for ‘status’ or ‘success’ keys and return correct status codes

If view returned serializable dict, returns response in a format requested by HTTP_ACCEPT header. Defaults to JSON if none requested or match.

Currently supports JSON or YAML (if installed), but can easily be extended.

Example:

```

@ajax_request
def my_view(self, request):
    news = News.objects.all()
    news_titles = [entry.title for entry in news]
    return { 'news_titles': news_titles }

```

`seed.decorators.get_prog_key` (*func_name*, *import_file_pk*)

Return the progress key for the cache

`seed.decorators.lock_and_track` (*fn*, **args*, ***kwargs*)

Decorator to lock tasks to single executor and provide progress url.

`seed.decorators.require_organization_id` (*func*)

Validate that organization_id is in the GET params and it’s an int.

`seed.decorators.require_organization_id_class` (*fn*)

Validate that organization_id is in the GET params and it’s an int.

`seed.decorators.require_organization_membership` (*fn*)

Validate that the organization_id passed in GET is valid for request user.

6.13.5 Factory

class `seed.factory.SEEDFactory`

Bases: `seed.test_helpers.factory.helpers.DjangoFunctionalFactory`

model factory for SEED

classmethod `building_snapshot` (*canonical_building=None, *args, **kwargs*)

creates an `BuildingSnapshot` inst.

if `canonical_building` (`CanonicalBuilding` inst.) is `None`, then a `CanonicalBuilding` inst. is created and a `BuildingSnapshot` inst. is created and linked to the `CanonicalBuilding` inst.

6.13.6 Models

6.13.7 Search

Search methods pertaining to buildings.

`seed.search.build_json_params` (*order_by, sort_reverse*)

returns `db_columns`, `extra_data_sort`, and updated `order_by`

Parameters `order_by` (*str*) – field to `order_by`

Returns tuple: `db_columns`: dict of known DB columns i.e. non-JSONField, `extra_data_sort` bool if `order_by` is in `extra_data` JSONField, `order_by` str if `sort_reverse` and DB column prepend a '-' for the django `order_by`

`seed.search.build_shared_buildings_orgs` (*orgs*)

returns a list of sibling and parent orgs

`seed.search.create_building_queryset` (*orgs, exclude, order_by, other_orgs=None, extra_data_sort=False*)

creates a queryset of buildings within orgs. If `other_orgs`, buildings in both orgs and `other_orgs` will be represented in the queryset.

Parameters

- **orgs** – queryset of `Organization` inst.
- **exclude** – django query exclude dict.
- **order_by** – django query `order_by` str.
- **other_orgs** – list of other orgs to `or` the query

`seed.search.create_inventory_queryset` (*inventory_type, orgs, exclude, order_by, other_orgs=None*)

creates a queryset of properties or taxlots within orgs. If `other_orgs`, properties/taxlots in both orgs and `other_orgs` will be represented in the queryset.

Parameters

- **inventory_type** – property or taxlot.
- **orgs** – queryset of `Organization` inst.
- **exclude** – django query exclude dict.
- **order_by** – django query `order_by` str.
- **other_orgs** – list of other orgs to `or` the query

`seed.search.filter_other_params(queryset, other_params, db_columns)`

applies a dictionary filter to the query set. Does some domain specific parsing, mostly to remove extra query params and deal with ranges. Ranges should be passed in as '<field name>__lte' or '<field name>__gte' e.g. `other_params = {'gross_floor_area__lte': 50000}`

Parameters

- **Queryset** `queryset` (*Django*) – queryset to be filtered
- **other_params** (*dict*) – dictionary to be parsed and applied to filter.
- **db_columns** (*dict*) – list of column names, extra_data blob outside these

Returns Django Queryset:

`seed.search.generate_paginated_results(queryset, number_per_page=25, page=1, whitelist_orgs=None, below_threshold=False, matching=True)`

Return a page of results as a list from the queryset for the given fields

Parameters

- **queryset** – optional queryset to filter from
- **number_per_page** (*int*) – optional number of results per page
- **page** (*int*) – optional page of results to get
- **whitelist_orgs** – a queryset returning the organizations in which all building fields can be returned, otherwise only the parent organization's `exportable_fields` should be returned. The `whitelist_orgs` are the orgs the request user belongs to.
- **below_threshold** – True if less than the parent org's query threshold is greater than the number of queryset results. If True, only return buildings within `whitelist_orgs`.
- **matching** – Toggle expanded parent and children data, including coparent and confidence

Usage:

```
generate_paginated_results(q, 1)
```

Returns:

```
[
  {
    'gross_floor_area': 1710,
    'site_eui': 123,
    'tax_lot_id': 'a-tax-lot-id',
    'year_built': 2001
  }
]
```

`seed.search.get_building_fieldnames()`

returns a list of field names for the BuildingSnapshot class/model that will be searched against

`seed.search.get_inventory_fieldnames(inventory_type)`

returns a list of field names that will be searched against

`seed.search.get_orgs_w_public_fields()`

returns a list of orgs that have publicly shared fields

`seed.search.inventory_search_filter_sort(inventory_type, params, user)`

Given a parsed set of params, perform the search, filter, and sort for Properties or Taxlots

`seed.search.is_not_whitelist_building` (*parent_org, building, whitelist_orgs*)
returns false if a building is part of the `whitelist_orgs`

Parameters

- **parent_org** – the umbrella parent Organization instance.
- **building** – the BuildingSnapshot inst.
- **whitelist_orgs** – queryset of Organization instances.

Returns bool

`seed.search.mask_results` (*search_results*)
masks (deletes dict keys) for non-shared public fields

`seed.search.orchestrate_search_filter_sort` (*params, user, skip_sort=False*)
Given a parsed set of params, perform the search, filter, and sort for BuildingSnapshot's

`seed.search.paginate_results` (*request, search_results*)
returns a paginated list of dict results

`seed.search.parse_body` (*request*)
parses the request body for search params, q, etc

Parameters **request** – django wsgi request object

Returns dict

Example:

```
{
  'exclude': dict, exclude dict for django queryset
  'order_by': str, query order_by, defaults to 'tax_lot_id'
  'sort_reverse': bool, True if ASC, False if DSC
  'page': int, pagination page
  'number_per_page': int, number per pagination page
  'show_shared_buildings': bool, whether to search across all user's orgs
  'q': str, global search param
  'other_search_params': dict, filter params
  'project_id': str, project id if exists in body
}
```

`seed.search.process_search_params` (*params, user, is_api_request=False*)
Given a python representation of a search query, process it into the internal format that is used for searching, filtering, sorting, and pagination.

Parameters

- **params** – a python object representing the search query
- **user** – the user this search is for
- **is_api_request** – bool, boolean whether this search is being done as an api request.

Returns dict

Example:

```
{
  'exclude': dict, exclude dict for django queryset
  'order_by': str, query order_by, defaults to 'tax_lot_id'
  'sort_reverse': bool, True if ASC, False if DSC
  'page': int, pagination page
```

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```

'number_per_page': int, number per pagination page
'show_shared_buildings': bool, whether to search across all user's orgs
'q': str, global search param
'other_search_params': dict, filter params
'project_id': str, project id if exists in body
}

```

`seed.search.remove_results_below_q_threshold(search_results)`

removes buildings if total count of buildings grouped by org is less than their org's public query threshold

Parameters `search_results` (*list/queryset*) – search results

Returns list or queryset

`seed.search.search_buildings(q, fieldnames=None, queryset=None)`

returns a queryset for matching buildings :param str or unicode q: search string :param list fieldnames: list of BuildingSnapshot model fieldnames

(defaults to those generated by `get_building_field_names()`)

Parameters `queryset` – optional queryset to filter from, defaults to `BuildingSnapshot.objects.none()`

Returns

queryset queryset of matching buildings

`seed.search.search_inventory(inventory_type, q, fieldnames=None, queryset=None)`

returns a queryset for matching Taxlot(View)/Property(View) :param str or unicode q: search string :param list fieldnames: list of model fieldnames :param queryset: optional queryset to filter from, defaults to

`BuildingSnapshot.objects.none()`

Returns

queryset queryset of matching buildings

`seed.search.search_properties(q, fieldnames=None, queryset=None)`

`seed.search.search_public_buildings(request, orgs)`

returns a queryset or list of buildings matching the search params and count

Parameters

- **request** – wsgi request (Django) for parsing params
- **orgs** – list of Organization instances to search within

Returns tuple (search_results_list, result count)

`seed.search.search_taxlots(q, fieldnames=None, queryset=None)`

6.13.8 Tasks

`seed.tasks.delete_organization(org_pk)`

delete_organization_buildings

6.13.9 Token Generator

token_generator.py - taken from django core master branch

needed a token check that would not expire after three days for sending a signup email

class seed.token_generators.**SignupTokenGenerator**

Bases: object

Strategy object used to generate and check tokens for the password reset mechanism.

check_token (user, token, token_expires=True)

Check that a password reset token is correct for a given user.

make_token (user)

Returns a token that can be used once to do a password reset for the given user.

6.13.10 URLs

6.13.11 Utils

6.13.12 Views

6.13.13 Module contents

6.14 Serializers Package

6.14.1 Submodules

6.14.2 Serializers

class seed.serializers.celery.**CeleryDatetimeSerializer** (skipkeys=False, ensure_ascii=True, check_circular=True, allow_nan=True, sort_keys=False, indent=None, separators=None, encoding='utf-8', default=None)

Bases: json.encoder.JSONEncoder

default (obj)

Implement this method in a subclass such that it returns a serializable object for `o`, or calls the base implementation (to raise a `TypeError`).

For example, to support arbitrary iterators, you could implement default like this:

```
def default(self, o):
    try:
        iterable = iter(o)
    except TypeError:
        pass
    else:
        return list(iterable)
```

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```
# Let the base class default method raise the TypeError
return JSONEncoder.default(self, o)
```

```
static seed_decoder(obj)
```

```
static seed_dumps(obj)
```

```
static seed_loads(obj)
```

6.14.3 Labels

```
class seed.serializers.labels.LabelSerializer(*args, **kwargs)
```

```
Bases: rest_framework.serializers.ModelSerializer
```

```
class Meta
```

```
extra_kwargs = {'super_organization': {'write_only': True}}
```

```
fields = ('id', 'name', 'color', 'organization_id', 'super_organization', 'is_appli
```

```
model
```

```
alias of seed.models.models.StatusLabel
```

```
get_is_applied(obj)
```

6.14.4 Module contents

6.15 URLs Package

6.15.1 Submodules

6.15.2 Accounts

6.15.3 APIs

6.15.4 Main

6.15.5 Projects

6.16 Utilities Package

6.16.1 Submodules

6.16.2 APIs

required approvals from the U.S. Department of Energy) and contributors. All rights reserved. # NOQA :author

```
class seed.utils.api.APIBypassCSRFMiddleware(get_response)
```

```
Bases: object
```

This middleware turns off CSRF protection for API clients.

It must come before `CsrfViewMiddleware` in `settings.MIDDLEWARE`.

```
class seed.utils.api.OrgCreateMixin
```

Bases: `seed.utils.api.OrgMixin`

Mixin to add organization when creating model instance

```
perform_create (serializer)
```

Override to add org

```
class seed.utils.api.OrgCreateUpdateMixin
```

Bases: `seed.utils.api.OrgCreateMixin`, `seed.utils.api.OrgUpdateMixin`

Mixin to add organization when creating/updating model instance

```
class seed.utils.api.OrgMixin
```

Bases: `object`

Provides `get_organization` and `get_parent_org` method

```
get_organization (request, return_obj=None)
```

Get org from query param or request.user. :param request: request object. :param return_obj: bool. Set to True if obj vs pk is desired. :return: int representing a valid organization pk or

organization object.

```
get_parent_org (request)
```

Gets parent organization of org from query param or request. :param request: Request object. :return: organization object.

```
class seed.utils.api.OrgQuerySetMixin
```

Bases: `seed.utils.api.OrgMixin`

Mixin providing a `get_queryset` method that filters on organization.

In order to use this mixin you must specify the model attributes on the `View[Set]` class. By default it assumes there is an organization field on the model. You can override this by setting the `orgfilter` attribute to the appropriate fieldname. This also allows nested fields e.g. `foreign_key.organization`. By default this retrieves organization from query string param OR the `default_organization` or first returned organization of the logged in user. You can force it to return the appropriate “parent” organization by setting the `force_parent` attribute to `True`.

```
get_queryset ()
```

“get_queryset filtered on organization

```
class seed.utils.api.OrgUpdateMixin
```

Bases: `seed.utils.api.OrgMixin`

Mixin to add organization when updating model instance

```
perform_update (serializer)
```

Override to add org

```
class seed.utils.api.OrgValidateMixin
```

Bases: `object`

Mixin to provide a `validate()` method organization to ensure users belongs to the same org as the instance referenced by a foreign key..

You must set `org_validators` on the Serializer that uses this Mixin. This is a list of `OrgValidator` named tuples (where key is the key on request data representing the foreign key, and field the foreign key that represents the organization on the corresponding model).

```
my_validator = OrgValidator(key='foreign_key', field='organization_id')
```

..example:

```
class MySerializer(OrgValidateMixin, serializers.ModelSerializer):
```

```
    foreign_key= serializers.PrimaryKeyRelatedField( query_set=MyModel.objects.all()
    ) org_validators = [my_validator]
```

This ensures request.user belongs to the org MyModel.organization

You can traverse foreign key relationships by using a double underscore in validator.field

In the example above setting validator field to be 'property__org_id' is equivalent to MyModel.property.org_id

If you use this Mixin and write a validate method, you must call super to ensure validation takes place.

```
validate (data)
```

Object level validation. Checks for self.org_validators on Serializers and ensures users belongs to org corresponding to the foreign key being set.

```
validate_org (instance, user, validator)
```

Raise error if orgs do not match. :param instance: value in request.data.get(key) to check against :type instance: model instance :param org_id of user, from get_org_id(request) :type org_id: int :param validator: validator to user :type: OrgValidator named tuple

```
class seed.utils.api.OrgValidator (key, field)
```

Bases: tuple

```
field
```

Alias for field number 1

```
key
```

Alias for field number 0

```
seed.utils.api.api_endpoint (fn)
```

Decorator function to mark a view as allowed to authenticate via API key.

Decorator must be used before login_required or has_perm to set request.user for those decorators.

```
seed.utils.api.api_endpoint_class (fn)
```

Decorator function to mark a view as allowed to authenticate via API key.

Decorator must be used before login_required or has_perm to set request.user for those decorators.

```
seed.utils.api.clean_api_regex (url)
```

Given a django-style url regex pattern, strip it down to a human-readable url.

TODO: If pks ever appear in the url, this will need to account for that.

```
seed.utils.api.drf_api_endpoint (fn)
```

Decorator to register a Django Rest Framework view with the list of API endpoints. Marks it with `is_api_endpoint = True` as well as appending it to the global `endpoints` list.

```
seed.utils.api.format_api_docstring (docstring)
```

Cleans up a python method docstring for human consumption.

```
seed.utils.api.get_all_urls (urllist, prefix="")
```

Recursive generator that traverses entire tree of URLs, starting with urllist, yielding a tuple of (url_pattern, view_function) for each one.

```
seed.utils.api.get_api_endpoints ()
```

Examines all views and returns those with `is_api_endpoint` set to true (done by the `@api_endpoint` decorator).

```
seed.utils.api.get_api_request_user (request)
```

Determines if this is an API request and returns the corresponding user if so.

`seed.utils.api.get_org_id_from_validator(instance, field)`

For querysets Django enables you to do things like:

note double underscore. However you can't do:

This presents an issue as `getattr` only works 1 level deep:

`getattr(obj, 'org.id')` does not work either.

This can be worked around using `rgetattr` (above). This functions mimics `getattr(obj, 'org__id')` by splitting field on `__` and calling `rgetattr` on the result.

`seed.utils.api.rgetattr(obj, lst)`

This enables recursive `getattr` look ups. given `obj`, `['a', 'b', 'c']` as params it will look up: `obj.a`, `a.b`, `b.c` returning `b.c` unless one of the previous values was `None`, in which case it returns `None` immediately.

Parameters

- **obj** (*object*) – initial object to examine
- **lst** (*list*) – list of successive attributes to look up

6.16.3 Buildings

`seed.utils.buildings.get_buildings_for_user_count(user)`

returns the number of buildings in a user's orgs

`seed.utils.buildings.get_search_query(user, params)`

`seed.utils.buildings.get_source_type(import_file, source_type="")`

Used for converting `ImportFile` `source_type` into an int.

6.16.4 Constants

6.16.5 Mappings

6.16.6 Organizations

`seed.utils.organizations.create_organization(user=None, org_name="", *args, **kwargs)`

Helper script to create a user/org relationship from scratch. This is heavily used and creates the default labels, columns, and data quality rules when a new organization is created

Parameters

- **user** – user inst.
- **org_name** – str, name of Organization we'd like to create.
- **kwargs** (*optional*) – 'role', int; 'status', str.

`seed.utils.organizations.create_suborganization(user, current_org, suborg_name="", user_role=10)`

6.16.7 Projects

6.16.8 Time

`seed.utils.time.convert_datestr(datestr, make_tz_aware=False)`

Converts dates like *12/31/2010* into datetime objects. Dates are returned in UTC time

TODO: reconcile this with `seed/lib/mcm/cleaners.py#L85-L85`

Parameters

- **datestr** – string, value to convert
- **make_tz_aware** – bool, if set to true, then will convert the timezone into UTC time

Returns datetime or None

`seed.utils.time.convert_to_js_timestamp(timestamp)`

converts a django/python datetime object to milliseconds since epoch

`seed.utils.time.parse_datetime(maybe_datetime)`

Process a datetime value that may be None, timestamp, strftime.

6.17 Views Package

6.17.1 Submodules

6.17.2 Accounts

6.17.3 APIs

`seed.views.api.get_api_schema(request, *args, **kwargs)`

Returns a hash of all API endpoints and their descriptions.

Returns:

```
{
  '/example/url/here': {
    'name': endpoint name,
    'description': endpoint description
  }...
}
```

Todo: Format docstrings better.

6.17.4 Main

`seed.views.main.angular_js_tests(request)`

Jasmine JS unit test code covering AngularJS unit tests

`seed.views.main.delete_file(request, *args, **kwargs)`

Deletes an ImportFile from a dataset.

Payload:

```
{
  "file_id": "ImportFile id",
  "organization_id": "current user organization id as integer"
}
```

Returns:

```
{
  'status': 'success' or 'error',
  'message': 'error message, if any'
}
```

`seed.views.main.delete_organization_inventory(request, *args, **kwargs)`

Starts a background task to delete all properties & taxlots in an org.

DELETE Expects 'org_id' for the organization.

Returns:

```
{
  'status': 'success' or 'error',
  'progress_key': ID of background job, for retrieving job progress
}
```

`seed.views.main.error404(request)`

`seed.views.main.error500(request)`

`seed.views.main.get_default_building_detail_columns(request, *args, **kwargs)`

Get default columns for building detail view.

front end is expecting a JSON object with an array of field names

Returns:

```
{
  "columns": ["project_id", "name", "gross_floor_area"]
}
```

`seed.views.main.home(request, *args, **kwargs)`

the main view for the app Sets in the context for the django template:

- **app_urls**: a json object of all the URLs that is loaded in the JS global namespace
- **username**: the request user's username (first and last name)
- **AWS_UPLOAD_BUCKET_NAME**: S3 direct upload bucket
- **AWS_CLIENT_ACCESS_KEY**: S3 direct upload client key
- **FILE_UPLOAD_DESTINATION**: 'S3' or 'filesystem'

`seed.views.main.public_search(request, *args, **kwargs)`

the public API unauthenticated endpoint

see `search_buildings` for the non-public version

`seed.views.main.search_buildings(request, *args, **kwargs)`

Retrieves a paginated list of CanonicalBuildings matching search params.

Payload:

```
{
  'q': a string to search on (optional),
  'show_shared_buildings': True to include buildings from other orgs in this_
↳user's org tree,
  'order_by': which field to order by (e.g. pm_property_id),
  'import_file_id': ID of an import to limit search to,
  'filter_params': {
    a hash of Django-like filter parameters to limit query. See seed.search.
↳filter_other_params.
    If 'project__slug' is included and set to a project's slug, buildings_
↳will include associated labels
    for that project.
  }
  'page': Which page of results to retrieve (default: 1),
  'number_per_page': Number of buildings to retrieve per page (default: 10),
}
```

Returns:

```
{
  'status': 'success',
  'buildings': [
    {
      all fields for buildings the request user has access to, e.g.:
      'canonical_building': the CanonicalBuilding ID of the building,
      'pm_property_id': ID of building (from Portfolio Manager),
      'address_line_1': First line of building's address,
      'property_name': Building's name, if any
      ...
    }...
  ]
  'number_matching_search': Total number of buildings matching search,
  'number_returned': Number of buildings returned for this page
}
```

seed.views.main.set_default_building_detail_columns(request, *args, **kwargs)

seed.views.main.set_default_columns(request, *args, **kwargs)

seed.views.main.version(request, *args, **kwargs)

Returns the SEED version and current git sha

6.17.5 Meters

class seed.views.meters.MeterViewSet(**kwargs)

Bases: rest_framework.viewsets.ViewSet

add_timeseries(request, *args, **kwargs)

Returns timeseries for meter — type:

status: required: true type: string description: Either success or error

meter: required: true type: dict description: meter information

timeseries: required: true type: list description: timeseries information

parameters:

- name: pk description: Meter primary key required: true paramType: path

create (*request*, *args, **kwargs)

Creates a new project

POST Expects organization_id in query string.

— parameters:

- name: organization_id description: ID of organization to associate new project with type: integer required: true paramType: query
- name: property_view_id description: Property view id to which to add the meter required: true paramType: form
- name: name description: name of the new meter type: string required: true paramType: form
- name: energy_type description: type of metered energy type: integer required: true paramType: form
- name: energy_units description: units of energy being metered type: integer required: true paramType: form

type:

status: required: true type: string description: Either success or error

list (*request*, *args, **kwargs)

Returns all of the meters for a property view — type:

status: required: true type: string description: Either success or error

property_view_id: required: true type: integer description: property view id of the request

meters: required: true type: array[meters] description: list of meters for property_view_id

parameters:

- name: organization_id description: The organization_id for this user's organization required: true paramType: query
- name: property_view_id description: The property_view_id of the building holding the meter data required: true paramType: query

```
parser_classes = (<class 'rest_framework.parsers.JSONParser'>, <class 'rest_framework.
```

```
raise_exception = True
```

retrieve (*request*, *args, **kwargs)

Returns a single meter based on its id — type:

status: required: true type: string description: Either success or error

meters: required: true type: dict description: meter object

parameters:

- name: pk description: Meter primary key required: true paramType: path

timeseries (*request*, *args, **kwargs)

Returns timeseries for meter — type:

status: required: true type: string description: Either success or error

meter: required: true type: dict description: meter information

data: required: true type: list description: timeseries information

parameters:

- name: pk description: Meter primary key required: true paramType: path

6.17.6 Projects

```
class seed.views.projects.ProjectViewSet (**kwargs)
```

```
    Bases:      seed.decorators.DecoratorMixindrf_api_endpoint,    rest_framework.
               viewsets.ModelViewSet
```

```
    ProjectViewModels = {'property': <class 'seed.models.projects.ProjectPropertyView'>,
```

```
    ViewModels = {'property': <class 'seed.models.properties.PropertyView'>, 'taxlot': <
```

```
    add (request, *args, **kwargs)
```

Add inventory to project :PUT: Expects organization_id in query string. — parameters:

- name: organization_id description: ID of organization to associate new project with type: integer required: true
- name: inventory_type description: type of inventory to add: 'property' or 'taxlot' type: string required: true paramType: query
- name: project slug or pk description: The project slug identifier or primary key for this project required: true paramType: path
- name: selected description: ids of property or taxlot views to add type: array[int] required: true

Returns:

```
{ 'status': 'success', 'added': [list of property/taxlot view ids added]
}
```

```
count (request, *args, **kwargs)
```

Returns the number of projects within the org tree to which a user belongs. Counts projects in parent orgs and sibling orgs.

GET Expects organization_id in query string.

— parameters:

- name: organization_id description: The organization_id for this user's organization required: true paramType: query

type:

status: type: string description: success, or error

count: type: integer description: number of projects

```
create (request, *args, **kwargs)
```

Creates a new project

POST Expects organization_id in query string.

— parameters:

- name: organization_id description: ID of organization to associate new project with type: integer required: true paramType: query
- name: name description: name of the new project type: string required: true

- name: is_compliance description: add compliance data if true type: bool required: true
- name: compliance_type description: description of type of compliance type: string required: true if is_compliance else false
- name: description description: description of new project type: string required: true if is_compliance else false
- name: end_date description: Timestamp for when project ends type: string required: true if is_compliance else false
- name: deadline_date description: Timestamp for compliance deadline type: string required: true if is_compliance else false

Returns::

```
{ 'status': 'success', 'project': {  
    'id': project's primary key, 'name': project's name, 'slug': project's identifier, 'status': 'active', 'number_of_buildings': Count of buildings associated with project  
    'last_modified': Timestamp when project last changed 'last_modified_by': {  
        'first_name': first name of user that made last change, 'last_name': last name,  
        'email': email address,  
    }, 'is_compliance': True if project is a compliance project, 'compliance_type': Description of compliance type, 'deadline_date': Timestamp of when compliance is due,  
    'end_date': Timestamp of end of project, 'property_count': 0, 'taxlot_count': 0,  
}
```

destroy (*request*, *args, **kwargs)

Delete a project.

DELETE Expects organization_id in query string.

— parameter_strategy: replace parameters:

- name: organization_id description: The organization_id for this user's organization required: true paramType: query
- name: project slug or pk description: The project slug identifier or primary key for this project required: true paramType: path

Returns::

```
{ 'status': 'success',  
}
```

get_error (*error*, key=None, val=None)

Return error message and corresponding http status code.

get_key (*pk*)

Determine where to use slug or pk to identify project.

get_organization ()

Get org id from query param or request.user.

get_params (*keys*)
Get required params from post etc body.
Returns dict of params and list of missing params.

get_project (*key, pk*)
Get project for view.

get_queryset ()

get_status (*status*)
Get status from string or int

list (*request, *args, **kwargs*)
Retrieves all projects for a given organization.
GET Expects organization_id in query string.

parameters:

- name: organization_id description: The organization_id for this user's organization required: true paramType: query

Returns:

```
{
  'status': 'success',
  'projects': [
    {
      'id': project's primary key,
      'name': project's name,
      'slug': project's identifier,
      'status': 'active',
      'number_of_buildings': Count of buildings associated with project
      'last_modified': Timestamp when project last changed
      'last_modified_by': {
        'first_name': first name of user that made last change,
        'last_name': last name,
        'email': email address,
      },
      'is_compliance': True if project is a compliance project,
      'compliance_type': Description of compliance type,
      'deadline_date': Timestamp of when compliance is due,
      'end_date': Timestamp of end of project,
      'property_count': number of property views associated with_
    }
  ]
}
```

parser_classes = (<class 'rest_framework.parsers.JSONParser'>,)

partial_update (*request, *args, **kwargs*)
Updates a project. Allows partial update, i.e. only updated param s need be supplied.

PUT Expects organization_id in query string.

— parameters:

- name: organization_id description: ID of organization to associate new project with type: integer required: true paramType: query

- name: project slug or pk description: The project slug identifier or primary key for this project required: true paramType: path
- name: name description: name of the new project type: string required: false
- name: is_compliance description: add compliance data if true type: bool required: false
- name: compliance_type description: description of type of compliance type: string required: true if is_compliance else false
- name: description description: description of new project type: string required: true if is_compliance else false
- name: end_date description: Timestamp for when project ends type: string required: true if is_compliance else false
- name: deadline_date description: Timestamp for compliance deadline type: string required: true if is_compliance else false

Returns::

```
{ 'status': 'success', 'project': {  
    'id': project's primary key, 'name': project's name, 'slug': project's identifier, 'status': 'active',  
    'number_of_buildings': Count of buildings associated with project  
    'last_modified': Timestamp when project last changed 'last_modified_by': {  
        'first_name': first name of user that made last change, 'last_name': last name,  
        'email': email address,  
    }, 'is_compliance': True if project is a compliance project, 'compliance_type': Description of compliance type,  
    'deadline_date': Timestamp of when compliance is due,  
    'end_date': Timestamp of end of project, 'property_count': number of property views associated with project,  
    'taxlot_count': number of taxlot views associated with project,  
}
```

project_view_factory (*inventory_type, project_id, view_id*)

ProjectPropertyView/ProjectTaxLotView factory.

query_set = <QuerySet []>

remove (*request, *args, **kwargs*)

Remove inventory from project :PUT: Expects organization_id in query string. — parameters:

- name: organization_id description: ID of organization to associate new project with type: integer required: true
- name: inventory_type description: type of inventory to add: 'property' or 'taxlot' type: string required: true paramType: query
- name: project slug or pk description: The project slug identifier or primary key for this project required: true paramType: path
- name: selected description: ids of property or taxlot views to add type: array[int] required: true

Returns:

```
{ 'status': 'success', 'removed': [list of property/taxlot view ids removed]  
}
```



```
renderer_classes = (<class 'rest_framework.renderers.JSONRenderer'>,)

```

retrieve (*request*, **args*, ***kwargs*)

Retrieves details about a project.

GET Expects organization_id in query string.

— parameter_strategy: replace parameters:

- name: organization_id description: The organization_id for this user's organization required: true paramType: query
- name: project slug or pk description: The project slug identifier or primary key for this project required: true paramType: path

Returns:

```
{
  'id': project's primary key,
  'name': project's name,
  'slug': project's identifier,
  'status': 'active',
  'number_of_buildings': Count of buildings associated with project
  'last_modified': Timestamp when project last changed
  'last_modified_by': {
    'first_name': first name of user that made last change,
    'last_name': last name,
    'email': email address,
  },
  'is_compliance': True if project is a compliance project,
  'compliance_type': Description of compliance type,
  'deadline_date': Timestamp of when compliance is due,
  'end_date': Timestamp of end of project
  'property_count': number of property views associated with project,
  'taxlot_count': number of taxlot views associated with project,
  'property_views': [list of serialized property views associated with the
    ↪project...],
  'taxlot_views': [list of serialized taxlot views associated with the
    ↪project...],
}
```

serializer_class

alias of seed.serializers.projects.ProjectSerializer

transfer (*request*, **args*, ***kwargs*)

Move or copy inventory from one project to another

PUT Expects organization_id in query string.

— parameter_strategy: replace parameters:

- name: organization_id description: The organization_id for this user's organization required: true type: integer paramType: query
- name: inventory_type description: type of inventory to add: 'property' or 'taxlot' required: true type: string paramType: query
- name: copy or move description: Whether to move or copy inventory required: true paramType: path required: true

-name: target type: string or int description: target project slug/id to move/copy to. required: true

- name: selected description: JSON array, list of property/taxlot views to be transferred
paramType: array[int] required: true

update (*request*, *args, **kwargs)

Updates a project

PUT Expects organization_id in query string.

— parameters:

- name: organization_id description: ID of organization to associate new project with type: integer
required: true paramType: query
- name: project slug or pk description: The project slug identifier or primary key for this project
required: true paramType: path
- name: name description: name of the new project type: string required: true
- name: is_compliance description: add compliance data if true type: bool required: true
- name: compliance_type description: description of type of compliance type: string required: true if
is_compliance else false
- name: description description: description of new project type: string required: true if
is_compliance else false
- name: end_date description: Timestamp for when project ends type: string required: true if
is_compliance else false
- name: deadline_date description: Timestamp for compliance deadline type: string required: true if
is_compliance else false

Returns::

```
{ 'status': 'success', 'project': {  
    'id': project's primary key, 'name': project's name, 'slug': project's identifier, 'sta-  
tus': 'active', 'number_of_buildings': Count of buildings associated with project  
    'last_modified': Timestamp when project last changed 'last_modified_by': {  
        'first_name': first name of user that made last change, 'last_name': last name,  
        'email': email address,  
    }, 'is_compliance': True if project is a compliance project, 'compliance_type': De-  
scription of compliance type, 'deadline_date': Timestamp of when compliance is due,  
    'end_date': Timestamp of end of project, 'property_count': number of property views  
    associated with project, 'taxlot_count': number of taxlot views associated with project,  
    }  
}
```

update_details (*request*, *args, **kwargs)

Updates extra information about the inventory/project relationship. In particular, whether the prop-erty/taxlot is compliant and who approved it.

PUT Expects organization_id in query string.

— parameter_strategy: replace parameters:

- name: organization_id description: The organization_id for this user's organization required: true
type: integer paramType: query

- name: inventory_type description: type of inventory to add: 'property' or 'taxlot' required: true type: string paramType: query
- name: id description: id of property/taxlot view to update required: true type: integer paramType: string
- name: compliant description: is compliant required: true type: bool paramType: string

Returns::

```
{ 'status': 'success', 'approved_date': Timestamp of change (now), 'approver': Email address of
  user making change
}
```

```
seed.views.projects.convert_dates (data, keys)
```

```
seed.views.projects.update_model (model, data)
```

6.17.7 Module contents

7.1 General Notes

7.1.1 Flake Settings

Flake is used to statically verify code syntax. If the developer is running flake from the command line, they should ignore the following checks in order to emulate the same checks as the CI machine.

Code	Description
E402	module level import not at top of file
E501	line too long (82 characters) or max-line = 100
E731	do not assign a lambda expression, use a def
W503	line break occurred before a binary operator

To run flake locally call:

```
tox -e flake8
```

7.2 Django Notes

7.2.1 Adding New Fields to Database

Adding new fields to SEED can be complicated since SEED has a mix of typed fields (database fields) and extra data fields. Follow the steps below to add new fields to the SEED database:

1. Add the field to the PropertyState or the TaxLotState model. Adding fields to the Property or TaxLot is more complicated and not documented yet. 2. Add field to list in the following locations:

- models/columns.py: Column.DATABASE_COLUMNS
- TaxLotState.coparent or PropertyState.coparent: SQL query and keep_fields

3. Run `./manage.py makemigrations`
4. Add in a Python script in the new migration to add in the new column into every organizations list of columns

```
def forwards(apps, schema_editor):
    Column = apps.get_model("seed", "Column")
    Organization = apps.get_model("orgs", "Organization")

    # from seed.lib.superperms.orgs.models import (
    new_db_field = {
        'column_name': 'pm_property_id',
        'table_name': 'PropertyState',
        'display_name': 'PM Property ID',
        'data_type': 'string',
    }

    # Go through all the organizations
    for org in Organization.objects.all():
        columns = Column.objects.filter(
            organization_id=org.id,
            table_name=new_db_field['table_name'],
            column_name=new_db_field['column_name'],
            is_extra_data=False,
        )

        if not columns.count():
            details.update(new_db_field)
            Column.objects.create(**details)
        elif columns.count() == 1:
            c = columns.first()
            if c.display_name is None or c.display_name == '':
                c.display_name = new_db_field['display_name']
            if c.data_type is None or c.data_type == '' or c.data_type_
            == 'None':
                c.data_type = new_db_field['data_type']
                c.save()
            else:
                print " More than one column returned"

class Migration(migrations.Migration):
    dependencies = [
        ('seed', '0090_auto_20180425_1154'),
    ]

    operations = [
        migrations.RunPython(forwards),
    ]
```

5. Run migrations `./manage.py migrate`
6. Run unit tests, fix failures. Below is a list of files that need to be fixed (this is not an exhaustive list):
 - `test_mapping_data.py:test_keys`
 - `test_columns.py:test_column_retrieve_schema`
 - `test_columns.py:test_column_retrieve_db_fields`
7. (Optional) Update example files to include new fields
8. Test import workflow with mapping to new fields

7.2.2 AWS S3

Amazon AWS S3 Expires headers should be set on the AngularJS partials if using S3 with the management command: `set_s3_expires_headers_for_angularjs_partials`

Example:

```
python manage.py set_s3_expires_headers_for_angularjs_partials --verbosity=3
```

The default user invite reply-to email can be overridden in the `config/settings/common.py` file. The `SERVER_EMAIL` settings var is the reply-to email sent along with new account emails.

```
# config/settings/common.py
PASSWORD_RESET_EMAIL = 'reset@seed.lbl.gov'
SERVER_EMAIL = 'no-reply@seed.lbl.gov'
```

7.3 AngularJS Integration Notes

7.3.1 Template Tags

Angular and Django both use `{{` and `}}` as variable delimiters, and thus the AngularJS variable delimiters are renamed `{` and `}`.

```
window.BE.apps.seed = angular.module('BE.seed', ['$interpolateProvider'], function (
  ↪$interpolateProvider) {
    $interpolateProvider.startSymbol("{");
    $interpolateProvider.endSymbol("}");
  }
);
```

7.3.2 Django CSRF Token and AJAX Requests

For ease of making angular `$http` requests, we automatically add the CSRF token to all `$http` requests as recommended by <http://django-angular.readthedocs.io/en/latest/integration.html#xmlhttprequest>

```
window.BE.apps.seed.run(function ($http, $cookies) {
  $http.defaults.headers.common['X-CSRFToken'] = $cookies['csrftoken'];
});
```

7.3.3 Routes and Partial or Views

Routes in `static/seed/js/seed.js` (the normal angularjs `app.js`)

```
window.BE.apps.seed.config(['$routeProvider', function ($routeProvider) {
  $routeProvider
    .when('/', {
      templateUrl: static_url + '/seed/partial/home.html'
    })
    .when('/projects', {
      controller: 'project_list_controller',
      templateUrl: static_url + '/seed/partial/projects.html'
```

(continues on next page)

(continued from previous page)

```

    })
    .when('/buildings', {
        templateUrl: static_url + '/seed/partials/buildings.html'
    })
    .when('/admin', {
        controller: 'seed_admin_controller',
        templateUrl: static_url + '/seed/partials/admin.html'
    })
    .otherwise({ redirectTo: '/' });
});

```

HTML partials in *static/seed/partials/*

on production and staging servers on AWS, or for the partial html templates loaded on S3, or a CDN, the external resource should be added to the white list in *static/seed/js/seed/js*

```

// white list for s3
window.BE.apps.seed.config(function( $sceDelegateProvider ) {
    $sceDelegateProvider.resourceUrlWhitelist([
        // localhost
        'self',
        // AWS s3
        'https://be-*.amazonaws.com/**'
    ]);
});

```

7.4 Logging

Information about error logging can be found here - <https://docs.djangoproject.com/en/1.7/topics/logging/>

Below is a standard set of error messages from Django.

A logger is configured to have a log level. This log level describes the severity of the messages that the logger will handle. Python defines the following log levels:

```

DEBUG: Low level system information for debugging purposes
INFO: General system information
WARNING: Information describing a minor problem that has occurred.
ERROR: Information describing a major problem that has occurred.
CRITICAL: Information describing a critical problem that has occurred.

```

Each message that is written to the logger is a Log Record. The log record is stored in the web server & Celery

7.5 BEDES Compliance and Managing Columns

Columns that do not represent hardcoded fields in the application are represented using a Django database model defined in the *seed.models* module. The goal of adding new columns to the database is to create *seed.models.Column* records in the database for each column to import. Currently, the list of Columns is dynamically populated by importing data.

There are default mappings for ESPM are located here:

<https://github.com/SEED-platform/seed/blob/develop/seed/lib/mappings/data/pm-mapping.json>

7.6 Resetting the Database

This is a brief description of how to drop and re-create the database for the seed application.

The first two commands below are commands distributed with the Postgres database, and are not part of the seed application. The third command below will create the required database tables for seed and setup initial data that the application expects (initial columns for BEDES). The last command below (spanning multiple lines) will create a new superuser and organization that you can use to login to the application, and from there create any other users or organizations that you require.

Below are the commands for resetting the database and creating a new user:

```
psql -c 'DROP DATABASE "seeddb"'
psql -c 'CREATE DATABASE "seeddb" WITH OWNER = "seeduser";'
psql -c 'GRANT ALL PRIVILEGES ON DATABASE "seeddb" TO seeduser;'
psql -c 'ALTER USER seeduser CREATEDB;'

psql -c 'ALTER USER seeduser CREATEROLE;'
./manage.py migrate
./manage.py create_default_user \
    --username=testuser@seed.org \
    --password=password \
    --organization=testorg
```

7.7 Testing

JS tests can be run with Jasmine at the url *app/angular_js_tests/*.

Python unit tests are run with

```
python manage.py test --settings=config.settings.test
```

Run coverage using

```
coverage run manage.py test --settings=config.settings.test
coverage report --fail-under=83
```

Python compliance uses PEP8 with flake8

```
flake8
# or
tox -e flake8
```

JS Compliance uses jshint

```
jshint seed/static/seed/js
```


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9.1 For SEED-Platform Users

Please visit our User Support website for tutorials and documentation to help you learn how to use SEED-Platform.

<https://sites.google.com/a/lbl.gov/seed/>

There is also a link to the SEED-Platform Users forum, where you can connect with other users.

<https://groups.google.com/forum/#!forum/seed-platform-users>

For direct help on a specific problem, please email: SEED-Support@lists.lbl.gov

9.2 For SEED-Platform Developers

The Open Source code is available on the Github organization SEED-Platform:

<https://github.com/SEED-platform>

Please join the SEED-Platform Dev forum where you can connect with other developers.

<https://groups.google.com/forum/#!forum/seed-platform-dev>

CHAPTER 10

Frequently Asked Questions

Here are some frequently asked questions and/or issues.

- *Questions*
 - *What is the SEED Platform?*
- *Issues*
 - *Why is the domain set to example.com?*
 - *Why aren't the static assets being served correctly?*

10.1 Questions

10.1.1 What is the SEED Platform?

The Standard Energy Efficiency Data (SEED) Platform™ is a web-based application that helps organizations easily manage data on the energy performance of large groups of buildings. Users can combine data from multiple sources, clean and validate it, and share the information with others. The software application provides an easy, flexible, and cost-effective method to improve the quality and availability of data to help demonstrate the economic and environmental benefits of energy efficiency, to implement programs, and to target investment activity.

The SEED application is written in Python/Django, with AngularJS, Bootstrap, and other JavaScript libraries used for the front-end. The back-end database is required to be PostgreSQL.

The SEED web application provides both a browser-based interface for users to upload and manage their building data, as well as a full set of APIs that app developers can use to access these same data management functions.

Work on SEED Platform is managed by the National Renewable Energy Laboratory, with funding from the U.S. Department of Energy.

10.2 Issues

10.2.1 Why is the domain set to example.com?

If you see example.com in the emails that are sent from your hosted version of SEED then you will need to update your django sites object in the database.

10.2.2 Why aren't the static assets being served correctly?

Make sure that your local_untracked.py file does not have STATICFILES_STORAGE set to anything. If so, then comment out that section and redeploy/recollect/compress your static assets.

CHAPTER 11

Updating this documentation

This python code documentation was generated by running the following:

```
$ pip install -r requirements/local.txt
$ sphinx-apidoc -o docs/source/modules . seed/lib/mcm seed/lib/superperms
$ cd docs
$ make html
```


CHAPTER 12

Indices and tables

- `genindex`
- `modindex`
- `search`

C

`config.template_context`, 42
`config.tests`, 42
`config.utils`, 42
`config.views`, 42
`config.wsgi`, 42

S

`seed`, 120
`seed.audit_logs.models`, 37
`seed.audit_logs.tests`, 39
`seed.audit_logs.urls`, 40
`seed.audit_logs.views`, 40
`seed.data_importer`, 51
`seed.data_importer.managers`, 43
`seed.data_importer.utils`, 43
`seed.decorators`, 114
`seed.factory`, 116
`seed.green_button`, 53
`seed.green_button.tests`, 51
`seed.green_button.xml_importer`, 51
`seed.landing`, 61
`seed.landing.forms`, 53
`seed.landing.management`, 53
`seed.landing.management.commands`, 53
`seed.landing.management.commands.update_eula`, 53
`seed.landing.models`, 54
`seed.landing.tests`, 60
`seed.landing.urls`, 60
`seed.landing.views`, 60
`seed.lib`, 61
`seed.management`, 107
`seed.management.commands`, 107
`seed.managers`, 62
`seed.managers.json`, 61
`seed.managers.tests`, 61
`seed.models`, 107
`seed.models.auditlog`, 62
`seed.models.columns`, 62
`seed.models.cycles`, 68
`seed.models.models`, 70
`seed.models.projects`, 76
`seed.models.properties`, 82
`seed.models.tax_lots`, 97
`seed.public`, 107
`seed.search`, 116
`seed.serializers`, 121
`seed.serializers.celery`, 120
`seed.serializers.labels`, 121
`seed.tasks`, 119
`seed.template_tags.breadcrumbs`, 107
`seed.test_helpers`, 110
`seed.test_helpers.factory.helpers`, 109
`seed.test_helpers.factory.lib.chomsky`, 109
`seed.tests.test_admin_views`, 110
`seed.tests.test_decorators`, 110
`seed.tests.test_tasks`, 111
`seed.tests.test_views`, 112
`seed.tests.tests`, 113
`seed.tests.util`, 114
`seed.token_generators`, 120
`seed.urls`, 120
`seed.utils`, 120
`seed.utils.api`, 121
`seed.utils.buildings`, 124
`seed.utils.organizations`, 124
`seed.utils.time`, 125
`seed.views`, 135
`seed.views.meters`, 127
`seed.views.projects`, 129

A

- `access_token_set` (seed.landing.models.SEEDUser attribute), 54
- `acquire_lock()` (in module seed.data_importer.utils), 43
- `action` (seed.audit_logs.models.AuditLog attribute), 37
- `action_note` (seed.audit_logs.models.AuditLog attribute), 37
- `action_response` (seed.audit_logs.models.AuditLog attribute), 37
- `ACTIVE_STATUS` (seed.models.projects.Project attribute), 76
- `add()` (seed.views.projects.ProjectViewSet method), 129
- `add_timeseries()` (seed.views.meters.MeterViewSet method), 127
- `adding_buildings_status_percentage_cache_key` (seed.models.projects.Project attribute), 77
- `address_line_1` (seed.models.properties.PropertyState attribute), 87
- `address_line_1` (seed.models.tax_lots.TaxLotState attribute), 101
- `address_line_2` (seed.models.properties.PropertyState attribute), 87
- `address_line_2` (seed.models.tax_lots.TaxLotState attribute), 101
- `AdminViewsTest` (class in seed.tests.test_admin_views), 110
- `ajax_request()` (in module seed.decorators), 115
- `ajax_request_class()` (in module seed.decorators), 115
- `analysis_end_time` (seed.models.properties.PropertyState attribute), 87
- `analysis_start_time` (seed.models.properties.PropertyState attribute), 87
- `analysis_state` (seed.models.properties.PropertyState attribute), 87
- `ANALYSIS_STATE_COMPLETED` (seed.models.properties.PropertyState attribute), 86
- `ANALYSIS_STATE_FAILED` (seed.models.properties.PropertyState attribute), 86
- `analysis_state_message` (seed.models.properties.PropertyState attribute), 87
- `ANALYSIS_STATE_NOT_STARTED` (seed.models.properties.PropertyState attribute), 86
- `ANALYSIS_STATE_QUEUED` (seed.models.properties.PropertyState attribute), 86
- `ANALYSIS_STATE_STARTED` (seed.models.properties.PropertyState attribute), 86
- `ANALYSIS_STATE_TYPES` (seed.models.properties.PropertyState attribute), 86
- `api_endpoint()` (in module seed.utils.api), 123
- `api_endpoint_class()` (in module seed.utils.api), 123
- `api_key` (seed.landing.models.SEEDUser attribute), 54
- `APIBypassCSRFMiddleware` (class in seed.utils.api), 121
- `approved_date` (seed.models.projects.ProjectPropertyView attribute), 79
- `approved_date` (seed.models.projects.ProjectTaxLotView attribute), 81
- `approver` (seed.models.projects.ProjectPropertyView attribute), 79
- `approver` (seed.models.projects.ProjectTaxLotView attribute), 81
- `approver_id` (seed.models.projects.ProjectPropertyView attribute), 80
- `approver_id` (seed.models.projects.ProjectTaxLotView attribute), 81
- `as_collection()` (in module seed.green_button.xml_importer), 51
- `assert_expected_mappings()` (seed.tests.test_views.TestMCMViews method), 113
- `AttributeOption` (class in seed.models.models), 70
- `AttributeOption.DoesNotExist`, 70
- `AttributeOption.MultipleObjectsReturned`, 70
- `audit_type` (seed.audit_logs.models.AuditLog attribute), 86

37
AuditLog (class in seed.audit_logs.models), 37
AuditLog.DoesNotExist, 37
AuditLog.MultipleObjectsReturned, 37
auditlog_set (seed.landing.models.SEEDUser attribute), 54
AuditLogManager (class in seed.audit_logs.models), 39
AuditLogModelTests (class in seed.audit_logs.tests), 39
AuditLogQuerySet (class in seed.audit_logs.models), 39
AuditLogViewTests (class in seed.audit_logs.tests), 39

B

base_fields (seed.landing.forms.LoginForm attribute), 53
block_number (seed.models.tax_lots.TaxLotState attribute), 101
BLUE_CHOICE (seed.models.models.StatusLabel attribute), 74
body (seed.tests.util.FakeRequest attribute), 114
breadcrumb() (in module seed.templatetags.breadcrumbs), 107
breadcrumb_root() (in module seed.templatetags.breadcrumbs), 108
breadcrumb_url() (in module seed.templatetags.breadcrumbs), 108
breadcrumb_url_root() (in module seed.templatetags.breadcrumbs), 108
BreadcrumbNode (class in seed.templatetags.breadcrumbs), 107
build_json_params() (in module seed.search), 116
build_shared_buildings_orgs() (in module seed.search), 116
building_certification (seed.models.properties.PropertyStatecolumn_list_settings (seed.models.columns.Column attribute), 87
building_count (seed.models.properties.PropertyState attribute), 87
building_data() (in module seed.green_button.xml_importer), 51
building_files (seed.models.properties.PropertyState attribute), 87
building_headers (seed.models.models.CustomBuildingHeader attribute), 72
building_snapshot (seed.models.models.BuildingAttributeVariant attribute), 70
building_snapshot() (seed.factory.SEEDFactory class method), 116
building_snapshot_id (seed.models.models.BuildingAttributeVariant attribute), 71
building_variant (seed.models.models.AttributeOption attribute), 70
building_variant_id (seed.models.models.AttributeOption attribute), 70
BuildingAttributeVariant (class in seed.models.models), 70
BuildingAttributeVariant.DoesNotExist, 70

BuildingAttributeVariant.MultipleObjectsReturned, 70
buildingsnapshot_set (seed.landing.models.SEEDUser attribute), 54

C

campus (seed.models.properties.Property attribute), 82
canonicalbuilding_set (seed.models.models.StatusLabel attribute), 74
CeleryDatetimeSerializer (class in seed.serializers.celery), 120
check_token() (seed.token_generators.SignupTokenGenerator method), 120
chunk_iterable() (in module seed.data_importer.utils), 43
city (seed.models.properties.PropertyState attribute), 87
city (seed.models.tax_lots.TaxLotState attribute), 101
ClassDecoratorTests (class in seed.tests.test_decorators), 110
clean() (seed.models.columns.Column method), 62
clean() (seed.models.properties.PropertyState method), 87
clean_api_regex() (in module seed.utils.api), 123
CoercionRobot (class in seed.data_importer.utils), 43
color (seed.models.models.StatusLabel attribute), 74
COLOR_CHOICES (seed.models.models.StatusLabel attribute), 74
Column (class in seed.models.columns), 62
Column.DoesNotExist, 62
Column.MultipleObjectsReturned, 62
COLUMN_EXCLUDE_FIELDS (seed.models.columns.Column attribute), 62
column_list_settings (seed.models.columns.Column attribute), 62
COLUMN_MERGE_FAVOR_EXISTING (seed.models.columns.Column attribute), 62
COLUMN_MERGE_FAVOR_NEW (seed.models.columns.Column attribute), 62
COLUMN_MERGE_PROTECTION (seed.models.columns.Column attribute), 62
column_name (seed.models.columns.Column attribute), 63
column_set (seed.models.models.Enum attribute), 73
columnunitset (seed.models.models.Unit attribute), 76
columnlistsettingcolumn_set (seed.models.columns.Column attribute), 63
columnmapping_set (seed.landing.models.SEEDUser attribute), 54
Command (class in seed.landing.management.commands.update_eula), 53
Compliance (class in seed.models.models), 71

Compliance.DoesNotExist, 71
 Compliance.MultipleObjectsReturned, 71
 compliance_set (seed.models.projects.Project attribute), 77
 compliance_type (seed.models.models.Compliance attribute), 71
 ComplianceTestCase (class in seed.tests.tests), 113
 compliant (seed.models.projects.ProjectPropertyView attribute), 80
 compliant (seed.models.projects.ProjectTaxLotView attribute), 81
 conditioned_floor_area (seed.models.properties.PropertyState attribute), 87
 conditioned_floor_area_orig (seed.models.properties.PropertyState attribute), 87
 config.template_context (module), 42
 config.tests (module), 42
 config.utils (module), 42
 config.views (module), 42
 config.wsgi (module), 42
 content_object (seed.audit_logs.models.AuditLog attribute), 37
 content_type (seed.audit_logs.models.AuditLog attribute), 38
 content_type_id (seed.audit_logs.models.AuditLog attribute), 38
 convert_dates() (in module seed.views.projects), 135
 convert_datestr() (in module seed.utils.time), 125
 convert_to_js_timestamp() (in module seed.utils.time), 125
 coparent() (seed.models.properties.PropertyState class method), 88
 coparent() (seed.models.tax_lots.TaxLotState class method), 101
 count() (seed.views.projects.ProjectViewSet method), 129
 create() (seed.views.meters.MeterViewSet method), 128
 create() (seed.views.projects.ProjectViewSet method), 129
 create_building_queryset() (in module seed.search), 116
 create_crumb() (in module seed.template_tags.breadcrumbs), 108
 create_crumb_first() (in module seed.template_tags.breadcrumbs), 108
 create_import_file() (seed.tests.util.DataMappingBaseTestCase method), 114
 create_inventory_queryset() (in module seed.search), 116
 create_mappings() (seed.models.columns.Column static method), 63
 create_mappings_from_file() (seed.models.columns.Column static method), 63
 create_models() (in module seed.green_button.xml_importer), 51
 create_note() (in module seed.audit_logs.views), 40
 create_organization() (in module seed.utils.organizations), 124
 create_suborganization() (in module seed.utils.organizations), 124
 created (seed.models.columns.Column attribute), 63
 created (seed.models.cycles.Cycle attribute), 68
 created (seed.models.properties.Property attribute), 82
 created (seed.models.properties.PropertyAuditLog attribute), 84
 created (seed.models.tax_lots.TaxLot attribute), 97
 created (seed.models.tax_lots.TaxLotAuditLog attribute), 98
 custom_id_1 (seed.models.properties.PropertyState attribute), 88
 custom_id_1 (seed.models.tax_lots.TaxLotState attribute), 102
 CustomBuildingHeaders (class in seed.models.models), 72
 CustomBuildingHeaders.DoesNotExist, 72
 CustomBuildingHeaders.MultipleObjectsReturned, 72
 Cycle (class in seed.models.cycles), 68
 cycle (seed.models.properties.PropertyView attribute), 94
 cycle (seed.models.tax_lots.TaxLotView attribute), 104
 Cycle.DoesNotExist, 68
 Cycle.MultipleObjectsReturned, 68
 cycle_id (seed.models.properties.PropertyView attribute), 94
 cycle_id (seed.models.tax_lots.TaxLotView attribute), 105
 cycle_set (seed.landing.models.SEEDUser attribute), 55

D

data_state (seed.models.properties.PropertyState attribute), 88
 data_state (seed.models.tax_lots.TaxLotState attribute), 102
 data_type (seed.models.columns.Column attribute), 64
 DATABASE_COLUMNS (seed.models.columns.Column attribute), 62
 DataMappingBaseTestCase (class in seed.tests.util), 114
 date_joined (seed.landing.models.SEEDUser attribute), 55
 de_camel_case() (in module config.utils), 42
 deadline_date (seed.models.models.Compliance attribute), 71
 declared_fields (seed.landing.forms.LoginForm attribute), 53
 DecoratorMixin() (in module seed.decorators), 114
 default() (seed.serializers.celery.CeleryDatetimeSerializer method), 120

default_building_detail_custom_columns
(seed.landing.models.SEEDUser attribute),
55

default_custom_columns
(seed.landing.models.SEEDUser attribute),
55

DEFAULT_LABELS (seed.models.models.StatusLabel
attribute), 74

default_organization (seed.landing.models.SEEDUser at-
tribute), 55

default_organization_id (seed.landing.models.SEEDUser
attribute), 55

delete_all() (seed.models.columns.Column static
method), 64

delete_organization() (in module seed.tasks), 119

DeleteModelsTestCase (class in seed.tests.util), 114

description (seed.models.projects.Project attribute), 77

description (seed.models.properties.PropertyAuditLog at-
tribute), 84

description (seed.models.tax_lots.TaxLotAuditLog
attribute), 98

destroy() (seed.views.projects.ProjectViewSet method),
130

display_name (seed.models.columns.Column attribute),
64

district (seed.models.tax_lots.TaxLotState attribute), 102

DjangoFunctionalFactory (class in
seed.test_helpers.factory.helpers), 109

drf_api_endpoint() (in module seed.utils.api), 123

E

email (seed.landing.models.SEEDUser attribute), 55

email_user() (seed.landing.models.SEEDUser method),
55

end (seed.models.cycles.Cycle attribute), 68

end_date (seed.models.models.Compliance attribute), 71

energy_alerts (seed.models.properties.PropertyState at-
tribute), 88

energy_score (seed.models.properties.PropertyState at-
tribute), 88

energy_type() (in module
seed.green_button.xml_importer), 52

energy_units() (in module
seed.green_button.xml_importer), 52

Enum (class in seed.models.models), 73

enum (seed.models.columns.Column attribute), 64

Enum.DoesNotExist, 73

Enum.MultipleObjectsReturned, 73

enum_id (seed.models.columns.Column attribute), 64

enum_name (seed.models.models.Enum attribute), 73

enum_values (seed.models.models.Enum attribute), 73

EnumValue (class in seed.models.models), 73

EnumValue.DoesNotExist, 73

EnumValue.MultipleObjectsReturned, 73

EXCLUDED_API_FIELDS
(seed.models.columns.Column attribute),
62

EXCLUDED_COLUMN_RETURN_FIELDS
(seed.models.columns.Column attribute),
62

EXCLUDED_MAPPING_FIELDS
(seed.models.columns.Column attribute),
62

expected_mappings (seed.tests.test_views.TestMCMViews
attribute), 113

extra_data (seed.models.properties.PropertyState at-
tribute), 88

extra_data (seed.models.tax_lots.TaxLotState attribute),
102

extra_kwargs (seed.serializers.labels.LabelSerializer.Meta
attribute), 121

F

FakeClient (class in seed.tests.util), 114

FakeRequest (class in seed.tests.util), 114

field (seed.utils.api.OrgValidator attribute), 123

field_name (seed.models.models.BuildingAttributeVariant
attribute), 71

fields (seed.serializers.labels.LabelSerializer.Meta at-
tribute), 121

filter_other_params() (in module seed.search), 116

first_name (seed.landing.models.SEEDUser attribute), 55

format_api_docstring() (in module seed.utils.api), 123

G

gapauditlog_view (seed.models.properties.PropertyView
attribute), 94

generate_chomsky() (in module
seed.test_helpers.factory.lib.chomsky), 109

generate_key() (seed.landing.models.SEEDUser
method), 56

generate_paginated_results() (in module seed.search),
117

generation_date (seed.models.properties.PropertyState
attribute), 88

GET (seed.tests.util.FakeRequest attribute), 114

get() (seed.tests.util.FakeClient method), 114

get_absolute_url() (seed.landing.models.SEEDUser
method), 56

get_all_urls() (in module seed.utils.api), 123

get_analysis_state_display()
(seed.models.properties.PropertyState method),
88

get_api_endpoints() (in module seed.utils.api), 123

get_api_request_user() (in module seed.utils.api), 123

get_audit_type_display()
(seed.audit_logs.models.AuditLog method), 38

get_building_fieldnames() (in module seed.search), 117

[get_building_logs\(\)](#) (in module `seed.audit_logs.views`), [40](#)
[get_buildings_for_user_count\(\)](#) (in module `seed.utils.buildings`), [124](#)
[get_color_display\(\)](#) (`seed.models.models.StatusLabel` method), [75](#)
[get_compliance\(\)](#) (`seed.models.projects.Project` method), [77](#)
[get_compliance_type_display\(\)](#) (`seed.models.models.Compliance` method), [71](#)
[get_core_pk_column\(\)](#) (in module `seed.data_importer.utils`), [43](#)
[get_data_state_display\(\)](#) (`seed.models.properties.PropertyState` method), [88](#)
[get_data_state_display\(\)](#) (`seed.models.tax_lots.TaxLotState` method), [102](#)
[get_error\(\)](#) (`seed.views.projects.ProjectViewSet` method), [130](#)
[get_full_name\(\)](#) (`seed.landing.models.SEEDUser` method), [56](#)
[get_inventory_fieldnames\(\)](#) (in module `seed.search`), [117](#)
[get_is_applied\(\)](#) (`seed.serializers.labels.LabelSerializer` method), [121](#)
[get_key\(\)](#) (`seed.views.projects.ProjectViewSet` method), [130](#)
[get_lock_time\(\)](#) (in module `seed.data_importer.utils`), [43](#)
[get_merge_protection_display\(\)](#) (`seed.models.columns.Column` method), [64](#)
[get_merge_state_display\(\)](#) (`seed.models.properties.PropertyState` method), [88](#)
[get_merge_state_display\(\)](#) (`seed.models.tax_lots.TaxLotState` method), [102](#)
[get_next_by_created\(\)](#) (`seed.audit_logs.models.AuditLog` method), [38](#)
[get_next_by_created\(\)](#) (`seed.models.columns.Column` method), [64](#)
[get_next_by_created\(\)](#) (`seed.models.cycles.Cycle` method), [68](#)
[get_next_by_created\(\)](#) (`seed.models.models.Compliance` method), [71](#)
[get_next_by_created\(\)](#) (`seed.models.models.StatusLabel` method), [75](#)
[get_next_by_created\(\)](#) (`seed.models.projects.Project` method), [77](#)
[get_next_by_created\(\)](#) (`seed.models.projects.ProjectPropertyView` method), [80](#)
[get_next_by_created\(\)](#) (`seed.models.projects.ProjectTaxLotView` method), [81](#)
[get_next_by_created\(\)](#) (`seed.models.properties.Property` method), [82](#)
[get_next_by_created\(\)](#) (`seed.models.tax_lots.TaxLot` method), [97](#)
[get_next_by_created\(\)](#) (`seed.models.cycles.Cycle` class method), [68](#)
[get_org_id_from_validator\(\)](#) (in module `seed.utils.api`), [123](#)
[get_organization\(\)](#) (`seed.utils.api.OrgMixin` method), [122](#)
[get_organization\(\)](#) (`seed.views.projects.ProjectViewSet` method), [130](#)
[get_orgs_w_public_fields\(\)](#) (in module `seed.search`), [117](#)
[get_params\(\)](#) (`seed.views.projects.ProjectViewSet` method), [130](#)
[get_parent_org\(\)](#) (`seed.utils.api.OrgMixin` method), [122](#)
[get_previous_by_created\(\)](#) (`seed.audit_logs.models.AuditLog` method), [38](#)
[get_previous_by_created\(\)](#) (`seed.models.columns.Column` method), [64](#)
[get_previous_by_created\(\)](#) (`seed.models.cycles.Cycle` method), [68](#)
[get_previous_by_created\(\)](#) (`seed.models.models.Compliance` method), [72](#)
[get_previous_by_created\(\)](#) (`seed.models.models.StatusLabel` method), [75](#)
[get_previous_by_created\(\)](#) (`seed.models.projects.Project` method), [77](#)
[get_previous_by_created\(\)](#)

(seed.models.projects.ProjectPropertyView method), 80

get_previous_by_created() (seed.models.projects.ProjectTaxLotView method), 81

get_previous_by_created() (seed.models.properties.Property method), 82

get_previous_by_created() (seed.models.tax_lots.TaxLot method), 97

get_previous_by_date_joined() (seed.landing.models.SEEDUser method), 56

get_previous_by_end() (seed.models.cycles.Cycle method), 68

get_previous_by_modified() (seed.audit_logs.models.AuditLog method), 38

get_previous_by_modified() (seed.models.columns.Column method), 64

get_previous_by_modified() (seed.models.models.Compliance method), 72

get_previous_by_modified() (seed.models.models.StatusLabel method), 75

get_previous_by_modified() (seed.models.projects.Project method), 77

get_previous_by_modified() (seed.models.projects.ProjectPropertyView method), 80

get_previous_by_modified() (seed.models.projects.ProjectTaxLotView method), 81

get_previous_by_start() (seed.models.cycles.Cycle method), 68

get_previous_by_updated() (seed.models.properties.Property method), 82

get_previous_by_updated() (seed.models.tax_lots.TaxLot method), 97

get_prog_key() (in module seed.decorators), 115

get_project() (seed.views.projects.ProjectViewSet method), 131

get_queryset() (seed.audit_logs.models.AuditLogManager method), 39

get_queryset() (seed.data_importer.managers.NotDeletedManager method), 43

get_queryset() (seed.managers.json.JsonManager method), 61

get_queryset() (seed.utils.api.OrgQuerySetMixin method), 122

get_queryset() (seed.views.projects.ProjectViewSet method), 131

get_record_type_display() (seed.models.properties.PropertyAuditLog method), 84

get_record_type_display() (seed.models.tax_lots.TaxLotAuditLog method), 99

get_search_query() (in module seed.utils.buildings), 124

get_shared_field_type_display() (seed.models.columns.Column method), 64

get_short_name() (seed.landing.models.SEEDUser method), 56

get_source_type() (in module seed.utils.buildings), 124

get_status() (seed.views.projects.ProjectViewSet method), 131

get_status_display() (seed.models.projects.Project method), 77

get_unit_type_display() (seed.models.models.Unit method), 76

get_value_source_display() (seed.models.models.AttributeOption method), 70

GetDatasetsViewsTests (class in seed.tests.test_views), 112

grant_set (seed.landing.models.SEEDUser attribute), 56

GRAY_CHOICE (seed.models.models.StatusLabel attribute), 74

GREEN_CHOICE (seed.models.models.StatusLabel attribute), 74

greenassessmentproperty_set (seed.models.properties.PropertyView attribute), 95

greenassessmentpropertyauditlog_set (seed.landing.models.SEEDUser attribute), 56

gross_floor_area (seed.models.properties.PropertyState attribute), 88

gross_floor_area_orig (seed.models.properties.PropertyState attribute), 88

groups (seed.landing.models.SEEDUser attribute), 56

H

handle() (seed.landing.management.commands.update_eula.Command method), 53

has_compliance (seed.models.projects.Project attribute), 77

has_object (seed.models.properties.PropertyState attribute), 88

hash_object (seed.models.tax_lots.TaxLotState attribute), 102

help (seed.landing.management.commands.update_eula.Command attribute), 53

history() (seed.models.properties.PropertyState method), 88

- history() (seed.models.taxLots.TaxLotState method), 102
- home_energy_score_id (seed.models.properties.PropertyState attribute), 89
- ## I
- id (seed.audit_logs.models.AuditLog attribute), 38
- id (seed.landing.models.SEEDUser attribute), 56
- id (seed.models.columns.Column attribute), 64
- id (seed.models.cycles.Cycle attribute), 68
- id (seed.models.models.AttributeOption attribute), 70
- id (seed.models.models.BuildingAttributeVariant attribute), 71
- id (seed.models.models.Compliance attribute), 72
- id (seed.models.models.CustomBuildingHeaders attribute), 72
- id (seed.models.models.Enum attribute), 73
- id (seed.models.models.EnumValue attribute), 73
- id (seed.models.models.StatusLabel attribute), 75
- id (seed.models.models.Unit attribute), 76
- id (seed.models.projects.Project attribute), 77
- id (seed.models.projects.ProjectPropertyView attribute), 80
- id (seed.models.projects.ProjectTaxLotView attribute), 81
- id (seed.models.properties.Property attribute), 82
- id (seed.models.properties.PropertyAuditLog attribute), 84
- id (seed.models.properties.PropertyState attribute), 89
- id (seed.models.properties.PropertyView attribute), 95
- id (seed.models.taxLots.TaxLot attribute), 97
- id (seed.models.taxLots.TaxLotAuditLog attribute), 99
- id (seed.models.taxLots.TaxLotState attribute), 102
- id (seed.models.taxLots.TaxLotView attribute), 105
- import_file (seed.models.columns.Column attribute), 64
- import_file (seed.models.properties.PropertyState attribute), 89
- import_file (seed.models.taxLots.TaxLotState attribute), 102
- import_file_id (seed.models.columns.Column attribute), 64
- import_file_id (seed.models.properties.PropertyState attribute), 89
- import_file_id (seed.models.taxLots.TaxLotState attribute), 102
- import_filename (seed.models.properties.PropertyAuditLog attribute), 84
- import_filename (seed.models.properties.PropertyView attribute), 95
- import_filename (seed.models.taxLots.TaxLotAuditLog attribute), 99
- import_filename (seed.models.taxLots.TaxLotView attribute), 105
- import_xml() (in module seed.green_button.xml_importer), 52
- importfile_set (seed.models.cycles.Cycle attribute), 68
- ImportFileViewsTests (class in seed.tests.test_views), 112
- importrecord_set (seed.landing.models.SEEDUser attribute), 56
- INACTIVE_STATUS (seed.models.projects.Project attribute), 77
- initialize_audit_logs() (seed.models.properties.PropertyView method), 95
- initialize_audit_logs() (seed.models.taxLots.TaxLotView method), 105
- INTERNAL_TYPE_TO_DATA_TYPE (seed.models.columns.Column attribute), 62
- interval_block_data() (in module seed.green_button.xml_importer), 52
- interval_data() (in module seed.green_button.xml_importer), 52
- invalid_test_cc_number() (seed.test_helpers.factory.helpers.DjangoFunctionalFactory class method), 109
- inventory_search_filter_sort() (in module seed.search), 117
- InventoryViewTests (class in seed.tests.test_views), 112
- is_extra_data (seed.models.columns.Column attribute), 65
- is_not_whitelist_building() (in module seed.search), 117
- is_staff (seed.landing.models.SEEDUser attribute), 57
- ## J
- json_order_by() (seed.managers.json.JsonQuerySet method), 61
- JsonManager (class in seed.managers.json), 61
- JsonQuerySet (class in seed.managers.json), 61
- jurisdiction_property_id (seed.models.properties.PropertyState attribute), 89
- jurisdiction_tax_lot_id (seed.models.taxLots.TaxLotState attribute), 102
- ## K
- key (seed.utils.api.OrgValidator attribute), 123
- ## L
- labels (seed.models.properties.Property attribute), 82
- labels (seed.models.taxLots.TaxLot attribute), 97
- LabelSerializer (class in seed.serializers.labels), 121
- LabelSerializer.Meta (class in seed.serializers.labels), 121
- landing_page() (in module seed.landing.views), 60
- last_modified_by (seed.models.projects.Project attribute), 77
- last_modified_by_id (seed.models.projects.Project attribute), 77
- last_modified_user (seed.landing.models.SEEDUser attribute), 57
- last_name (seed.landing.models.SEEDUser attribute), 57

latitude (seed.models.properties.PropertyState attribute), 89
LIGHT_BLUE_CHOICE (seed.models.models.StatusLabel attribute), 74
list() (seed.views.meters.MeterViewSet method), 128
list() (seed.views.projects.ProjectViewSet method), 131
lock_and_track() (in module seed.decorators), 115
locked (seed.tests.test_decorators.TestDecorators attribute), 111
log_action() (seed.audit_logs.models.AuditLogManager method), 39
logentry_set (seed.landing.models.SEEDUser attribute), 57
login_view() (in module seed.landing.views), 60
LoginForm (class in seed.landing.forms), 53
longitude (seed.models.properties.PropertyState attribute), 89
lookup_hash() (seed.data_importer.utils.CoercionRobot method), 43
lot_number (seed.models.properties.PropertyState attribute), 89

M

MainViewTests (class in seed.tests.test_views), 113
make_key() (seed.data_importer.utils.CoercionRobot method), 43
make_token() (seed.token_generators.SignupTokenGenerator method), 120
mapped_mappings (seed.models.columns.Column attribute), 65
mask_results() (in module seed.search), 118
measure_set (seed.models.properties.PropertyState attribute), 89
measures (seed.models.properties.PropertyState attribute), 89
media (seed.landing.forms.LoginForm attribute), 53
merge_protection (seed.models.columns.Column attribute), 65
merge_relationships() (seed.models.properties.PropertyState class method), 90
merge_relationships() (seed.models.tax_lots.TaxLotState class method), 103
merge_state (seed.models.properties.PropertyState attribute), 90
merge_state (seed.models.tax_lots.TaxLotState attribute), 103
META (seed.tests.util.FakeRequest attribute), 114
meter_data() (in module seed.green_button.xml_importer), 52
meters (seed.models.properties.PropertyView attribute), 95
MeterViewSet (class in seed.views.meters), 127
model (seed.serializers.labels.LabelSerializer.Meta attribute), 121

modified (seed.models.columns.Column attribute), 65
modified_import_records (seed.landing.models.SEEDUser attribute), 57

N

name (seed.models.cycles.Cycle attribute), 68
name (seed.models.models.StatusLabel attribute), 75
name (seed.models.projects.Project attribute), 77
name (seed.models.properties.PropertyAuditLog attribute), 84
name (seed.models.tax_lots.TaxLotAuditLog attribute), 99
normalized_address (seed.models.properties.PropertyState attribute), 90
normalized_address (seed.models.tax_lots.TaxLotState attribute), 103
NotDeletedManager (class in seed.data_importer.managers), 43
notes (seed.landing.models.SEEDUser attribute), 57
notes (seed.models.properties.PropertyView attribute), 95
notes (seed.models.tax_lots.TaxLotView attribute), 105
number_properties (seed.models.tax_lots.TaxLotState attribute), 103

O

oauth2_provider_application (seed.landing.models.SEEDUser attribute), 58
object_id (seed.audit_logs.models.AuditLog attribute), 38
objects (seed.audit_logs.models.AuditLog attribute), 38
objects (seed.landing.models.SEEDUser attribute), 58
objects (seed.models.columns.Column attribute), 65
objects (seed.models.cycles.Cycle attribute), 68
objects (seed.models.models.AttributeOption attribute), 70
objects (seed.models.models.BuildingAttributeVariant attribute), 71
objects (seed.models.models.Compliance attribute), 72
objects (seed.models.models.CustomBuildingHeaders attribute), 72
objects (seed.models.models.Enum attribute), 73
objects (seed.models.models.EnumValue attribute), 74
objects (seed.models.models.StatusLabel attribute), 75
objects (seed.models.models.Unit attribute), 76
objects (seed.models.projects.Project attribute), 78
objects (seed.models.projects.ProjectPropertyView attribute), 80
objects (seed.models.projects.ProjectTaxLotView attribute), 81
objects (seed.models.properties.Property attribute), 82
objects (seed.models.properties.PropertyAuditLog attribute), 84

- objects (seed.models.properties.PropertyState attribute), 90
 - objects (seed.models.properties.PropertyView attribute), 95
 - objects (seed.models.tax_lots.TaxLot attribute), 98
 - objects (seed.models.tax_lots.TaxLotAuditLog attribute), 99
 - objects (seed.models.tax_lots.TaxLotState attribute), 103
 - objects (seed.models.tax_lots.TaxLotView attribute), 105
 - occupied_floor_area (seed.models.properties.PropertyState attribute), 90
 - occupied_floor_area_orig (seed.models.properties.PropertyState attribute), 90
 - options (seed.models.models.BuildingAttributeVariant attribute), 71
 - ORANGE_CHOICE (seed.models.models.StatusLabel attribute), 74
 - orchestrate_search_filter_sort() (in module seed.search), 118
 - organization (seed.audit_logs.models.AuditLog attribute), 38
 - organization (seed.models.columns.Column attribute), 65
 - organization (seed.models.cycles.Cycle attribute), 68
 - organization (seed.models.projects.Project attribute), 78
 - organization (seed.models.properties.Property attribute), 82
 - organization (seed.models.properties.PropertyAuditLog attribute), 84
 - organization (seed.models.properties.PropertyState attribute), 90
 - organization (seed.models.tax_lots.TaxLot attribute), 98
 - organization (seed.models.tax_lots.TaxLotAuditLog attribute), 99
 - organization (seed.models.tax_lots.TaxLotState attribute), 103
 - organization_id (seed.audit_logs.models.AuditLog attribute), 38
 - organization_id (seed.models.columns.Column attribute), 65
 - organization_id (seed.models.cycles.Cycle attribute), 69
 - organization_id (seed.models.properties.Property attribute), 83
 - organization_id (seed.models.properties.PropertyAuditLog attribute), 84
 - organization_id (seed.models.properties.PropertyState attribute), 90
 - organization_id (seed.models.tax_lots.TaxLot attribute), 98
 - organization_id (seed.models.tax_lots.TaxLotAuditLog attribute), 99
 - organization_id (seed.models.tax_lots.TaxLotState attribute), 103
 - organizationuser_set (seed.landing.models.SEEDUser attribute), 58
 - OrgCreateMixin (class in seed.utils.api), 122
 - OrgCreateUpdateMixin (class in seed.utils.api), 122
 - OrgMixin (class in seed.utils.api), 122
 - OrgQuerySetMixin (class in seed.utils.api), 122
 - orgs (seed.landing.models.SEEDUser attribute), 58
 - OrgUpdateMixin (class in seed.utils.api), 122
 - OrgValidateMixin (class in seed.utils.api), 122
 - OrgValidator (class in seed.utils.api), 123
 - owner (seed.models.projects.Project attribute), 78
 - owner (seed.models.properties.PropertyState attribute), 90
 - owner_address (seed.models.properties.PropertyState attribute), 90
 - owner_city_state (seed.models.properties.PropertyState attribute), 90
 - owner_email (seed.models.properties.PropertyState attribute), 90
 - owner_id (seed.models.projects.Project attribute), 78
 - owner_postal_code (seed.models.properties.PropertyState attribute), 90
 - owner_telephone (seed.models.properties.PropertyState attribute), 90
- ## P
- paginate_results() (in module seed.search), 118
 - parent1 (seed.models.properties.PropertyAuditLog attribute), 84
 - parent1 (seed.models.tax_lots.TaxLotAuditLog attribute), 99
 - parent1_id (seed.models.properties.PropertyAuditLog attribute), 84
 - parent1_id (seed.models.tax_lots.TaxLotAuditLog attribute), 99
 - parent2 (seed.models.properties.PropertyAuditLog attribute), 85
 - parent2 (seed.models.tax_lots.TaxLotAuditLog attribute), 99
 - parent2_id (seed.models.properties.PropertyAuditLog attribute), 85
 - parent2_id (seed.models.tax_lots.TaxLotAuditLog attribute), 99
 - parent_property (seed.models.properties.Property attribute), 83
 - parent_property_id (seed.models.properties.Property attribute), 83
 - parent_state1 (seed.models.properties.PropertyAuditLog attribute), 85
 - parent_state1 (seed.models.properties.PropertyState attribute), 91
 - parent_state1 (seed.models.tax_lots.TaxLotAuditLog attribute), 100
 - parent_state1_id (seed.models.properties.PropertyAuditLog attribute), 85

parent_state1_id (seed.models.tax_lots.TaxLotAuditLog attribute), 100

parent_state2 (seed.models.properties.PropertyAuditLog attribute), 85

parent_state2 (seed.models.properties.PropertyState attribute), 91

parent_state2 (seed.models.tax_lots.TaxLotAuditLog attribute), 100

parent_state2_id (seed.models.properties.PropertyAuditLog attribute), 85

parent_state2_id (seed.models.tax_lots.TaxLotAuditLog attribute), 100

parse_body() (in module seed.search), 118

parse_datetime() (in module seed.utils.time), 125

parser_classes (seed.views.meters.MeterViewSet attribute), 128

parser_classes (seed.views.projects.ProjectViewSet attribute), 131

partial_update() (seed.views.projects.ProjectViewSet method), 131

password_reset() (in module seed.landing.views), 60

password_reset_complete() (in module seed.landing.views), 60

password_reset_confirm() (in module seed.landing.views), 60

password_reset_done() (in module seed.landing.views), 60

password_set() (in module seed.landing.views), 60

path (seed.tests.util.FakeRequest attribute), 114

perform_create() (seed.utils.api.OrgCreateMixin method), 122

perform_update() (seed.utils.api.OrgUpdateMixin method), 122

PINNED_COLUMNS (seed.models.columns.Column attribute), 62

pk (seed.tests.test_decorators.TestDecorators attribute), 111

pm_parent_property_id (seed.models.properties.PropertyState attribute), 91

pm_property_id (seed.models.properties.PropertyState attribute), 91

POST (seed.tests.util.FakeRequest attribute), 114

post() (seed.tests.util.FakeClient method), 114

post_save_property_view() (in module seed.models.properties), 97

post_save_taxlot_view() (in module seed.models.tax_lots), 106

postal_code (seed.models.properties.PropertyState attribute), 91

postal_code (seed.models.tax_lots.TaxLotState attribute), 103

pre_delete_state() (in module seed.models.properties), 97

PRIMARY (seed.managers.json.JsonQuerySet attribute), 61

process_header_request() (seed.landing.models.SEEDUser class method), 58

process_search_params() (in module seed.search), 118

Project (class in seed.models.projects), 76

project (seed.models.models.Compliance attribute), 72

project (seed.models.projects.ProjectPropertyView attribute), 80

project (seed.models.projects.ProjectTaxLotView attribute), 81

Project.DoesNotExist, 76

Project.MultipleObjectsReturned, 77

project_id (seed.models.models.Compliance attribute), 72

project_id (seed.models.projects.ProjectPropertyView attribute), 80

project_id (seed.models.projects.ProjectTaxLotView attribute), 81

PROJECT_NAME_MAX_LENGTH (seed.models.projects.Project attribute), 77

project_property_views (seed.models.projects.Project attribute), 78

project_property_views (seed.models.properties.PropertyView attribute), 95

project_set (seed.landing.models.SEEDUser attribute), 58

project_set (seed.models.properties.PropertyView attribute), 96

project_set (seed.models.tax_lots.TaxLotView attribute), 105

project_taxlot_views (seed.models.projects.Project attribute), 78

project_taxlot_views (seed.models.tax_lots.TaxLotView attribute), 105

project_view_factory() (seed.views.projects.ProjectViewSet method), 132

ProjectPropertyView (class in seed.models.projects), 79

ProjectPropertyView.DoesNotExist, 79

ProjectPropertyView.MultipleObjectsReturned, 79

projectpropertyview_set (seed.landing.models.SEEDUser attribute), 59

ProjectTaxLotView (class in seed.models.projects), 80

ProjectTaxLotView.DoesNotExist, 80

ProjectTaxLotView.MultipleObjectsReturned, 81

projecttaxlotview_set (seed.landing.models.SEEDUser attribute), 59

ProjectTestCase (class in seed.tests.tests), 113

ProjectViewModels (seed.views.projects.ProjectViewSet attribute), 129

ProjectViewSet (class in seed.views.projects), 129

promote() (seed.models.properties.PropertyState method), 91

promote() (seed.models.tax_lots.TaxLotState method), 103

Property (class in seed.models.properties), 82
 property (seed.models.properties.PropertyView attribute), 96
 Property.DoesNotExist, 82
 Property.MultipleObjectsReturned, 82
 property_count (seed.models.projects.Project attribute), 78
 property_id (seed.models.properties.PropertyView attribute), 96
 property_name (seed.models.properties.PropertyState attribute), 91
 property_notes (seed.models.properties.PropertyState attribute), 91
 property_set (seed.models.models.StatusLabel attribute), 75
 property_set (seed.models.properties.Property attribute), 83
 property_states() (seed.models.tax_lots.TaxLotView method), 105
 property_type (seed.models.properties.PropertyState attribute), 91
 property_view (seed.models.projects.ProjectPropertyView attribute), 80
 property_view_id (seed.models.projects.ProjectPropertyView attribute), 80
 property_views (seed.models.projects.Project attribute), 78
 property_views() (seed.models.tax_lots.TaxLotView method), 105
 PropertyAuditLog (class in seed.models.properties), 83
 PropertyAuditLog.DoesNotExist, 84
 PropertyAuditLog.MultipleObjectsReturned, 84
 propertyauditlog_parent1 (seed.models.properties.PropertyAuditLog attribute), 85
 propertyauditlog_parent2 (seed.models.properties.PropertyAuditLog attribute), 85
 propertyauditlog_state (seed.models.properties.PropertyState attribute), 91
 propertyauditlog_view (seed.models.properties.PropertyView attribute), 96
 propertymeasure_set (seed.models.properties.PropertyState attribute), 92
 PropertyState (class in seed.models.properties), 86
 PropertyState.DoesNotExist, 86
 PropertyState.MultipleObjectsReturned, 87
 PropertyView (class in seed.models.properties), 94
 PropertyView.DoesNotExist, 94
 PropertyView.MultipleObjectsReturned, 94
 propertyview_set (seed.models.cycles.Cycle attribute), 69
 propertyview_set (seed.models.properties.PropertyState attribute), 92

Q

QUANTITY_UNIT_COLUMNS (seed.models.columns.Column attribute), 62
 query_set (seed.views.projects.ProjectViewSet attribute), 132

R

raise_exception (seed.views.meters.MeterViewSet attribute), 128
 rand_bool() (seed.test_helpers.factory.helpers.DjangoFunctionalFactory class method), 109
 rand_city() (seed.test_helpers.factory.helpers.DjangoFunctionalFactory class method), 109
 rand_city_suffix() (seed.test_helpers.factory.helpers.DjangoFunctionalFactory class method), 109
 rand_currency() (seed.test_helpers.factory.helpers.DjangoFunctionalFactory class method), 109
 rand_date() (seed.test_helpers.factory.helpers.DjangoFunctionalFactory class method), 109
 rand_domain() (seed.test_helpers.factory.helpers.DjangoFunctionalFactory class method), 109
 rand_email() (seed.test_helpers.factory.helpers.DjangoFunctionalFactory class method), 109
 rand_float() (seed.test_helpers.factory.helpers.DjangoFunctionalFactory class method), 109
 rand_int() (seed.test_helpers.factory.helpers.DjangoFunctionalFactory class method), 109
 rand_name() (seed.test_helpers.factory.helpers.DjangoFunctionalFactory class method), 109
 rand_phone() (seed.test_helpers.factory.helpers.DjangoFunctionalFactory class method), 109
 rand_plant_name() (seed.test_helpers.factory.helpers.DjangoFunctionalFactory class method), 109
 rand_str() (seed.test_helpers.factory.helpers.DjangoFunctionalFactory class method), 109
 rand_street_address() (seed.test_helpers.factory.helpers.DjangoFunctionalFactory class method), 109
 rand_street_suffix() (seed.test_helpers.factory.helpers.DjangoFunctionalFactory class method), 109
 random_conversation() (seed.test_helpers.factory.helpers.DjangoFunctionalFactory class method), 109
 raw_columns_expected (seed.tests.test_views.TestMCMViews attribute), 113
 raw_mappings (seed.models.columns.Column attribute), 65
 recent_sale_date (seed.models.properties.PropertyState attribute), 92
 record_type (seed.models.properties.PropertyAuditLog attribute), 86
 record_type (seed.models.tax_lots.TaxLotAuditLog attribute), 100
 RED_CHOICE (seed.models.models.StatusLabel attribute), 74

- `refresh_token_set` (`seed.landing.models.SEEDUser` attribute), 59
 - `release_date` (`seed.models.properties.PropertyState` attribute), 92
 - `release_lock()` (in module `seed.data_importer.utils`), 43
 - `remove()` (`seed.views.projects.ProjectViewSet` method), 132
 - `remove_results_below_q_threshold()` (in module `seed.search`), 119
 - `removing_buildings_status_percentage_cache_key` (`seed.models.projects.Project` attribute), 79
 - `render()` (`seed.templatetags.breadcrumbs.BreadcrumbNode` method), 107
 - `render()` (`seed.templatetags.breadcrumbs.UrlBreadcrumbNode` method), 107
 - `renderer_classes` (`seed.views.projects.ProjectViewSet` attribute), 132
 - `require_organization_id()` (in module `seed.decorators`), 115
 - `require_organization_id_class()` (in module `seed.decorators`), 115
 - `require_organization_membership()` (in module `seed.decorators`), 115
 - `REQUIRED_FIELDS` (`seed.landing.models.SEEDUser` attribute), 54
 - `RequireOrganizationIDTests` (class in `seed.tests.test_decorators`), 110
 - `retrieve()` (`seed.views.meters.MeterViewSet` method), 128
 - `retrieve()` (`seed.views.projects.ProjectViewSet` method), 133
 - `retrieve_all()` (`seed.models.columns.Column` static method), 65
 - `retrieve_all_by_tuple()` (`seed.models.columns.Column` static method), 66
 - `retrieve_db_field_name_for_hash_comparison()` (`seed.models.columns.Column` static method), 66
 - `retrieve_db_field_table_and_names_from_db_tables()` (`seed.models.columns.Column` static method), 66
 - `retrieve_db_fields()` (`seed.models.columns.Column` static method), 66
 - `retrieve_db_fields_from_db_tables()` (`seed.models.columns.Column` static method), 66
 - `retrieve_db_types()` (`seed.models.columns.Column` static method), 66
 - `retrieve_mapping_columns()` (`seed.models.columns.Column` static method), 66
 - `retrieve_priorities()` (`seed.models.columns.Column` static method), 67
 - `rgetattr()` (in module `seed.utils.api`), 124
 - `robots_txt()` (in module `config.views`), 42
 - `rule_set` (`seed.models.models.StatusLabel` attribute), 75
- ## S
- `save()` (`seed.audit_logs.models.AuditLog` method), 38
 - `save()` (`seed.landing.models.SEEDUser` method), 59
 - `save()` (`seed.models.properties.PropertyState` method), 92
 - `save()` (`seed.models.taxLots.TaxLotState` method), 103
 - `save_column_names()` (`seed.models.columns.Column` static method), 67
 - `scenarios` (`seed.models.properties.PropertyState` attribute), 92
 - `search_buildings()` (in module `seed.search`), 119
 - `search_inventory()` (in module `seed.search`), 119
 - `search_properties()` (in module `seed.search`), 119
 - `search_public_buildings()` (in module `seed.search`), 119
 - `search_taxlots()` (in module `seed.search`), 119
 - `seed` (module), 120
 - `seed.audit_logs.models` (module), 37
 - `seed.audit_logs.tests` (module), 39
 - `seed.audit_logs.urls` (module), 40
 - `seed.audit_logs.views` (module), 40
 - `seed.data_importer` (module), 51
 - `seed.data_importer.managers` (module), 43
 - `seed.data_importer.utils` (module), 43
 - `seed.decorators` (module), 114
 - `seed.factory` (module), 116
 - `seed.green_button` (module), 53
 - `seed.green_button.tests` (module), 51
 - `seed.green_button.xml_importer` (module), 51
 - `seed.landing` (module), 61
 - `seed.landing.forms` (module), 53
 - `seed.landing.management` (module), 53
 - `seed.landing.management.commands` (module), 53
 - `seed.landing.management.commands.update_eula` (module), 53
 - `seed.landing.models` (module), 54
 - `seed.landing.tests` (module), 60
 - `seed.landing.urls` (module), 60
 - `seed.landing.views` (module), 60
 - `seed.lib` (module), 61
 - `seed.lib.mappings` (module), 61
 - `seed.lib.merging` (module), 61
 - `seed.management` (module), 107
 - `seed.management.commands` (module), 107
 - `seed.managers` (module), 62
 - `seed.managers.json` (module), 61
 - `seed.managers.tests` (module), 61
 - `seed.models` (module), 107, 116
 - `seed.models.auditlog` (module), 62
 - `seed.models.columns` (module), 62
 - `seed.models.cycles` (module), 68
 - `seed.models.models` (module), 70
 - `seed.models.projects` (module), 76
 - `seed.models.properties` (module), 82

- seed.models.taxLots (module), 97
- seed.public (module), 107
- seed.search (module), 116
- seed.serializers (module), 121
- seed.serializers.celery (module), 120
- seed.serializers.labels (module), 121
- seed.tasks (module), 119
- seed.templatetags.breadcrumbs (module), 107
- seed.test_helpers (module), 110
- seed.test_helpers.factory.helpers (module), 109
- seed.test_helpers.factory.lib.chomsky (module), 109
- seed.tests.test_admin_views (module), 110
- seed.tests.test_decorators (module), 110
- seed.tests.test_tasks (module), 111
- seed.tests.test_views (module), 112
- seed.tests.tests (module), 113
- seed.tests.util (module), 114
- seed.token_generators (module), 120
- seed.urls (module), 120
- seed.utils (module), 120
- seed.utils.api (module), 121
- seed.utils.buildings (module), 124
- seed.utils.organizations (module), 124
- seed.utils.time (module), 125
- seed.views (module), 120, 135
- seed.views.meters (module), 127
- seed.views.projects (module), 129
- seed_decoder() (seed.serializers.celery.CeleryDatetimeSerializer static method), 121
- seed_dumps() (seed.serializers.celery.CeleryDatetimeSerializer static method), 121
- seed_loads() (seed.serializers.celery.CeleryDatetimeSerializer static method), 121
- SEEDFactory (class in seed.factory), 116
- SEEDUser (class in seed.landing.models), 54
- SEEDUser.DoesNotExist, 54
- SEEDUser.MultipleObjectsReturned, 54
- sentry_js() (in module config.template_context), 42
- serializer_class (seed.views.projects.ProjectViewSet attribute), 133
- session_key() (in module config.template_context), 42
- set_up() (seed.tests.util.DataMappingBaseTestCase method), 114
- setUp() (seed.audit_logs.tests.AuditLogModelTests method), 39
- setUp() (seed.audit_logs.tests.AuditLogViewTests method), 40
- setUp() (seed.landing.tests.UserLoginTest method), 60
- setUp() (seed.tests.test_admin_views.AdminViewsTest method), 110
- setUp() (seed.tests.test_decorators.RequireOrganizationIDTests method), 110
- setUp() (seed.tests.test_decorators.TestDecorators method), 111
- setUp() (seed.tests.test_tasks.TestTasks method), 111
- setUp() (seed.tests.test_views.GetDatasetsViewsTests method), 112
- setUp() (seed.tests.test_views.ImportFileViewsTests method), 112
- setUp() (seed.tests.test_views.InventoryViewTests method), 112
- setUp() (seed.tests.test_views.MainViewTests method), 113
- setUp() (seed.tests.test_views.TestMCMViews method), 113
- setUp() (seed.tests.tests.UtilsTests method), 113
- setUp() (seed.tests.util.DeleteModelsTestCase method), 114
- shared_field_type (seed.models.columns.Column attribute), 67
- SHARED_FIELD_TYPES (seed.models.columns.Column attribute), 62
- SHARED_NONE (seed.models.columns.Column attribute), 62
- SHARED_PUBLIC (seed.models.columns.Column attribute), 62
- show_shared_buildings (seed.landing.models.SEEDUser attribute), 59
- signup() (in module seed.landing.views), 60
- SignupTokenGenerator (class in seed.token_generators), 120
- simulation (seed.models.properties.PropertyState attribute), 92
- site_eui (seed.models.properties.PropertyState attribute), 93
- site_eui_modeled (seed.models.properties.PropertyState attribute), 93
- site_eui_modeled_orig (seed.models.properties.PropertyState attribute), 93
- site_eui_orig (seed.models.properties.PropertyState attribute), 93
- site_eui_weather_normalized (seed.models.properties.PropertyState attribute), 93
- site_eui_weather_normalized_orig (seed.models.properties.PropertyState attribute), 93
- slug (seed.models.projects.Project attribute), 79
- source_eui (seed.models.properties.PropertyState attribute), 93
- source_eui_modeled (seed.models.properties.PropertyState attribute), 93
- source_eui_modeled_orig (seed.models.properties.PropertyState attribute), 93
- source_eui_orig (seed.models.properties.PropertyState attribute), 93

source_eui_weather_normalized (seed.models.properties.PropertyState attribute), 93

source_eui_weather_normalized_orig (seed.models.properties.PropertyState attribute), 93

source_type (seed.models.properties.PropertyState attribute), 93

space_alerts (seed.models.properties.PropertyState attribute), 93

start (seed.models.cycles.Cycle attribute), 69

start_date (seed.models.models.Compliance attribute), 72

state (seed.models.properties.PropertyAuditLog attribute), 86

state (seed.models.properties.PropertyState attribute), 94

state (seed.models.properties.PropertyView attribute), 96

state (seed.models.tax_lots.TaxLotAuditLog attribute), 100

state (seed.models.tax_lots.TaxLotState attribute), 103

state (seed.models.tax_lots.TaxLotView attribute), 106

state_id (seed.models.properties.PropertyAuditLog attribute), 86

state_id (seed.models.properties.PropertyView attribute), 96

state_id (seed.models.tax_lots.TaxLotAuditLog attribute), 100

state_id (seed.models.tax_lots.TaxLotView attribute), 106

status (seed.models.projects.Project attribute), 79

STATUS_CHOICES (seed.models.projects.Project attribute), 77

StatusLabel (class in seed.models.models), 74

StatusLabel.DoesNotExist, 74

StatusLabel.MultipleObjectsReturned, 74

super_organization (seed.models.models.CustomBuildingHeader attribute), 72

super_organization (seed.models.models.StatusLabel attribute), 75

super_organization (seed.models.projects.Project attribute), 79

super_organization_id (seed.models.models.CustomBuildingHeader attribute), 73

super_organization_id (seed.models.models.StatusLabel attribute), 75

super_organization_id (seed.models.projects.Project attribute), 79

T

TABLE (seed.managers.json.JsonQuerySet attribute), 61

table_name (seed.models.columns.Column attribute), 67

tax_lot_states() (seed.models.properties.PropertyView method), 97

tax_lot_views() (seed.models.properties.PropertyView method), 97

TaxLot (class in seed.models.tax_lots), 97

taxlot (seed.models.tax_lots.TaxLotView attribute), 106

TaxLot.DoesNotExist, 97

TaxLot.MultipleObjectsReturned, 97

taxlot_count (seed.models.projects.Project attribute), 79

taxlot_id (seed.models.tax_lots.TaxLotView attribute), 106

taxlot_set (seed.models.models.StatusLabel attribute), 76

taxlot_view (seed.models.projects.ProjectTaxLotView attribute), 81

taxlot_view_id (seed.models.projects.ProjectTaxLotView attribute), 82

taxlot_views (seed.models.projects.Project attribute), 79

TaxLotAuditLog (class in seed.models.tax_lots), 98

TaxLotAuditLog.DoesNotExist, 98

TaxLotAuditLog.MultipleObjectsReturned, 98

taxlotauditlog_parent1 (seed.models.tax_lots.TaxLotAuditLog attribute), 100

taxlotauditlog_parent2 (seed.models.tax_lots.TaxLotAuditLog attribute), 101

taxlotauditlog_parent_state1 (seed.models.tax_lots.TaxLotState attribute), 103

taxlotauditlog_parent_state2 (seed.models.tax_lots.TaxLotState attribute), 104

taxlotauditlog_state (seed.models.tax_lots.TaxLotState attribute), 104

taxlotauditlog_view (seed.models.tax_lots.TaxLotView attribute), 106

taxlotproperty_set (seed.models.cycles.Cycle attribute), 69

taxlotproperty_set (seed.models.properties.PropertyView attribute), 97

taxlotproperty_set (seed.models.tax_lots.TaxLotView attribute), 106

TaxLotState (class in seed.models.tax_lots), 101

TaxLotState.DoesNotExist, 101

TaxLotState.MultipleObjectsReturned, 101

TaxLotView (class in seed.models.tax_lots), 104

TaxLotView.DoesNotExist, 104

TaxLotView.MultipleObjectsReturned, 104

taxlotview_set (seed.models.cycles.Cycle attribute), 69

taxlotview_set (seed.models.tax_lots.TaxLotState attribute), 104

tearDown() (seed.tests.util.DeleteModelsTestCase method), 114

test_add_org() (seed.tests.test_admin_views.AdminViewsTest method), 110

test_add_org_dupe() (seed.tests.test_admin_views.AdminViewsTest method), 110

test_add_user_existing_org() (seed.tests.test_admin_views.AdminViewsTest method), 110

test_add_user_new_org()

(seed.tests.test_admin_views.AdminViewsTest method), 110

test_add_user_no_org() (seed.tests.test_admin_views.AdminViewsTest method), 110

test_ajax_request_class_dict() (seed.tests.test_decorators.ClassDecoratorTests method), 110

test_ajax_request_class_dict_status_error() (seed.tests.test_decorators.ClassDecoratorTests method), 110

test_ajax_request_class_dict_status_false() (seed.tests.test_decorators.ClassDecoratorTests method), 110

test_ajax_request_class_format_type() (seed.tests.test_decorators.ClassDecoratorTests method), 110

test_audit() (seed.audit_logs.tests.AuditLogModelTests method), 39

test_audit_save() (seed.audit_logs.tests.AuditLogModelTests method), 39

test_audit_update() (seed.audit_logs.tests.AuditLogModelTests method), 39

test_basic_compliance_creation() (seed.tests.tests.ComplianceTestCase method), 113

test_basic_project_creation() (seed.tests.tests.ProjectTestCase method), 113

test_cc_number() (seed.test_helpers.factory.helpers.DjangoFunctionalFactory class method), 109

test_create_dataset() (seed.tests.test_views.TestMCMViews method), 113

test_create_note() (seed.audit_logs.tests.AuditLogViewTests method), 40

test_delete_dataset() (seed.tests.test_views.GetDatasetsViewsTests method), 112

test_delete_file() (seed.tests.test_views.ImportFileViewsTests method), 112

test_delete_organization() (seed.tests.test_tasks.TestTasks method), 111

test_delete_organization_doesnt_delete_user_if_multiple_memberships() (seed.tests.test_tasks.TestTasks method), 111

test_generic_relation() (seed.audit_logs.tests.AuditLogModelTests method), 39

test_get_all_audit_logs_for_an_org() (seed.audit_logs.tests.AuditLogModelTests method), 39

test_get_building_logs() (seed.audit_logs.tests.AuditLogViewTests method), 40

test_get_buildings_count_for_user() (seed.tests.tests.UtilsTests method), 114

test_get_column_mapping_suggestions() (seed.tests.test_views.TestMCMViews method), 113

test_get_column_mapping_suggestions_pm_file() (seed.tests.test_views.TestMCMViews method), 113

test_get_column_mapping_suggestions_with_columns() (seed.tests.test_views.TestMCMViews method), 113

test_get_cycles() (seed.tests.test_views.InventoryViewTests method), 112

test_get_dataset() (seed.tests.test_views.GetDatasetsViewsTests method), 112

test_get_datasets() (seed.tests.test_views.GetDatasetsViewsTests method), 112

test_get_datasets_count() (seed.tests.test_views.GetDatasetsViewsTests method), 112

test_get_datasets_count_invalid() (seed.tests.test_views.GetDatasetsViewsTests method), 112

test_get_import_file() (seed.tests.test_views.ImportFileViewsTests method), 112

test_get_matching_results() (seed.tests.test_views.ImportFileViewsTests method), 112

test_get_prog_key() (seed.tests.test_decorators.TestDecorators method), 111

test_get_properties() (seed.tests.test_views.InventoryViewTests method), 112

test_get_properties_cycle_id() (seed.tests.test_views.InventoryViewTests method), 112

test_get_properties_empty_page() (seed.tests.test_views.InventoryViewTests method), 112

test_get_properties_page_not_an_integer() (seed.tests.test_views.InventoryViewTests method), 112

test_get_properties_pint_fields() (seed.tests.test_views.InventoryViewTests method), 112

test_get_properties_property_extra_data() (seed.tests.test_views.InventoryViewTests method), 112

test_get_properties_taxlot_extra_data() (seed.tests.test_views.InventoryViewTests method), 112

test_get_properties_with_taxlots() (seed.tests.test_views.InventoryViewTests method), 112

test_get_property() (seed.tests.test_views.InventoryViewTests method), 112

test_get_property_columns() (seed.tests.test_views.InventoryViewTests method), 112

`test_get_property_multiple_taxlots()`
(seed.tests.test_views.InventoryViewTests method), 112

`test_get_raw_column_names()`
(seed.tests.test_views.TestMCMViews method), 113

`test_get_taxlot()` (seed.tests.test_views.InventoryViewTests method), 112

`test_get_taxlot_columns()`
(seed.tests.test_views.InventoryViewTests method), 112

`test_get_taxlots()` (seed.tests.test_views.InventoryViewTests method), 112

`test_get_taxlots_empty_page()`
(seed.tests.test_views.InventoryViewTests method), 112

`test_get_taxlots_extra_data()`
(seed.tests.test_views.InventoryViewTests method), 113

`test_get_taxlots_multiple_taxlots()`
(seed.tests.test_views.InventoryViewTests method), 113

`test_get_taxlots_no_cycle_id()`
(seed.tests.test_views.InventoryViewTests method), 113

`test_get_taxlots_page_not_an_integer()`
(seed.tests.test_views.InventoryViewTests method), 113

`test_home()` (seed.tests.test_views.MainViewTests method), 113

`test_increment_cache()` (seed.tests.test_decorators.TestDecorators method), 111

`test_locking()` (seed.tests.test_decorators.TestDecorators method), 111

`test_locking_w_exception()`
(seed.tests.test_decorators.TestDecorators method), 111

`test_model__unicode__()`
(seed.audit_logs.tests.AuditLogModelTests method), 39

`test_note()` (seed.audit_logs.tests.AuditLogModelTests method), 39

`test_note_save()` (seed.audit_logs.tests.AuditLogModelTests method), 39

`test_progress()` (seed.tests.test_decorators.TestDecorators method), 111

`test_progress()` (seed.tests.test_views.TestMCMViews method), 113

`test_require_organization_id_class_no_org_id()`
(seed.tests.test_decorators.ClassDecoratorTests method), 110

`test_require_organization_id_class_org_id()`
(seed.tests.test_decorators.ClassDecoratorTests method), 110

`test_require_organization_id_class_org_id_not_int()`
(seed.tests.test_decorators.ClassDecoratorTests method), 110

`test_require_organization_id_fail_no_key()`
(seed.tests.test_decorators.RequireOrganizationIDTests method), 110

`test_require_organization_id_fail_not_numeric()`
(seed.tests.test_decorators.RequireOrganizationIDTests method), 111

`test_require_organization_id_success_integer()`
(seed.tests.test_decorators.RequireOrganizationIDTests method), 111

`test_require_organization_id_success_string()`
(seed.tests.test_decorators.RequireOrganizationIDTests method), 111

`test_save_column_mappings()`
(seed.tests.test_views.TestMCMViews method), 113

`test_save_column_mappings_idempotent()`
(seed.tests.test_views.TestMCMViews method), 113

`test_signup_process()` (seed.tests.test_admin_views.AdminViewsTest method), 110

`test_signup_process_force_lowercase_email()`
(seed.tests.test_admin_views.AdminViewsTest method), 110

`test_simple_login()` (seed.landing.tests.UserLoginTest method), 60

`test_update_dataset()` (seed.tests.test_views.GetDatasetsViewsTests method), 112

`test_update_note()` (seed.audit_logs.tests.AuditLogViewTests method), 40

`TestDecorators` (class in seed.tests.test_decorators), 111

`TestException`, 111

`TestMCMViews` (class in seed.tests.test_views), 113

`TestTasks` (class in seed.tests.test_tasks), 111

`timeseries()` (seed.views.meters.MeterViewSet method), 128

`to_dict()` (seed.audit_logs.models.AuditLog method), 38

`to_dict()` (seed.models.models.Compliance method), 72

`to_dict()` (seed.models.models.StatusLabel method), 76

`to_dict()` (seed.models.projects.Project method), 79

`to_dict()` (seed.models.properties.PropertyState method), 94

`to_dict()` (seed.models.taxLots.TaxLotState method), 104

`transfer()` (seed.views.projects.ProjectViewSet method), 133

U

`ubid` (seed.models.properties.PropertyState attribute), 94

`Unit` (class in seed.models.models), 76

`unit` (seed.models.columns.Column attribute), 67

`Unit.DoesNotExist`, 76

`Unit.MultipleObjectsReturned`, 76

[unit_id](#) (seed.models.columns.Column attribute), [67](#)
[unit_name](#) (seed.models.models.Unit attribute), [76](#)
[unit_type](#) (seed.models.models.Unit attribute), [76](#)
[units_pint](#) (seed.models.columns.Column attribute), [67](#)
[unlocked](#) (seed.tests.test_decorators.TestDecorators attribute), [111](#)
[UNMAPPABLE_PROPERTY_FIELDS](#)
 (seed.models.columns.Column attribute), [62](#)
[UNMAPPABLE_TAXLOT_FIELDS](#)
 (seed.models.columns.Column attribute), [62](#)
[update\(\)](#) (seed.audit_logs.models.AuditLogQuerySet method), [39](#)
[update\(\)](#) (seed.views.projects.ProjectViewSet method), [134](#)
[update_details\(\)](#) (seed.views.projects.ProjectViewSet method), [134](#)
[update_model\(\)](#) (in module seed.views.projects), [135](#)
[update_note\(\)](#) (in module seed.audit_logs.views), [41](#)
[updated](#) (seed.models.properties.Property attribute), [83](#)
[updated](#) (seed.models.tax_lots.TaxLot attribute), [98](#)
[UrlBreadcrumbNode](#) (class in seed.template_tags.breadcrumbs), [107](#)
[use_description](#) (seed.models.properties.PropertyState attribute), [94](#)
[use_for_related_fields](#) (seed.audit_logs.models.AuditLogManager attribute), [39](#)
[use_for_related_fields](#) (seed.data_importer.managers.NotDeletedManager attribute), [43](#)
[user](#) (seed.audit_logs.models.AuditLog attribute), [38](#)
[user](#) (seed.models.cycles.Cycle attribute), [69](#)
[user_id](#) (seed.audit_logs.models.AuditLog attribute), [39](#)
[user_id](#) (seed.models.cycles.Cycle attribute), [69](#)
[user_permissions](#) (seed.landing.models.SEEDUser attribute), [59](#)
[UserLoginTest](#) (class in seed.landing.tests), [60](#)
[username](#) (seed.landing.models.SEEDUser attribute), [60](#)
[USERNAME_FIELD](#) (seed.landing.models.SEEDUser attribute), [54](#)
[UtilsTests](#) (class in seed.tests.tests), [113](#)

V

[valid_test_cc_number\(\)](#) (seed.test_helpers.factory.helpers.DjangoFunctionalFactory class method), [109](#)
[validate\(\)](#) (seed.utils.api.OrgValidateMixin method), [123](#)
[validate_model\(\)](#) (in module seed.models.columns), [67](#)
[validate_org\(\)](#) (seed.utils.api.OrgValidateMixin method), [123](#)
[value](#) (seed.models.models.AttributeOption attribute), [70](#)
[value_name](#) (seed.models.models.EnumValue attribute), [74](#)
[value_source](#) (seed.models.models.AttributeOption attribute), [70](#)

[values](#) (seed.models.models.EnumValue attribute), [74](#)
[view](#) (seed.models.properties.PropertyAuditLog attribute), [86](#)
[view](#) (seed.models.tax_lots.TaxLotAuditLog attribute), [101](#)
[view_id](#) (seed.models.properties.PropertyAuditLog attribute), [86](#)
[view_id](#) (seed.models.tax_lots.TaxLotAuditLog attribute), [101](#)
[ViewModels](#) (seed.views.projects.ProjectViewSet attribute), [129](#)
[views](#) (seed.models.properties.Property attribute), [83](#)
[views](#) (seed.models.tax_lots.TaxLot attribute), [98](#)

W

[WHITE_CHOICE](#) (seed.models.models.StatusLabel attribute), [74](#)

Y

[year_built](#) (seed.models.properties.PropertyState attribute), [94](#)
[year_ending](#) (seed.models.properties.PropertyState attribute), [94](#)