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# **satnogs-db Documentation**

*Release 1*

**SatNOGS**

**Mar 24, 2020**



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### 1.1 Docker Installation

#### 1. Requirements

You will need `docker` and `docker-compose`.

#### 2. Get the source code

Clone source code from the repository:

```
$ git clone https://gitlab.com/librespacefoundation/satnogs/satnogs-db.git
$ cd satnogs-db
```

#### 3. Configure settings

Set your environmental variables:

```
$ cp env-dist .env
```

#### 4. Install frontend dependencies

Install dependencies with `npm`:

```
$ npm install
```

Test and copy the newly downloaded static assets:

```
$ ./node_modules/.bin/gulp
```

#### 5. Run it!

Run `satnogs-db`:

```
$ docker-compose up -d --build
```

## 6. Populate database

Create, setup and populate the database with demo data:

```
$ docker-compose exec web djangoctl.sh initialize
```

Your satnogs-db development instance is available in localhost:8000. Go hack!

## 1.2 VirtualEnv Installation

### 1. Requirements

You will need python, python-virtualenvwrapper, pip and git

### 2. Get the source code

Clone source code from the [repository](#):

```
$ git clone https://gitlab.com/librespacefoundation/satnogs/satnogs-db.git
$ cd satnogs-db
```

### 3. Build the environment

Set up the virtual environment. On first run you should create it and link it to your project path.:

```
$ mkvirtualenv satnogs-db -a .
```

### 4. Configure settings

Set your environmental variables:

```
$ cp env-dist .env
```

### 5. Install frontend dependencies

Install dependencies with npm:

```
$ npm install
```

Test and copy the newly downloaded static assets:

```
$ ./node_modules/.bin/gulp
```

### 6. Run it!

Activate your python virtual environment:

```
$ workon satnogs-db
```

Just run it:

```
(satnogs-db)$ ./bin/djangoctl.sh develop .
```

### 7. Populate database

Create, setup and populate the database with demo data:

```
(satnogs-db)$ ./bin/djangoctl.sh initialize
```

Your satnogs-db development instance is available in localhost:8000. Go hack!

Thank you for your interest in developing SatNOGS! There are always bugs to file; bugs to fix in code; improvements to be made to the documentation; and more.

The below instructions are for software developers who want to work on [satnogs-db](#) code.

## 2.1 Workflow

When you want to start developing for SatNOGS, you should *follow the installation instructions*, then...

1. Read CONTRIBUTING.md file carefully.
2. Fork the [upstream repository](#) in GitLab.
3. Code!
4. Test the changes and fix any errors by running `tox`.
5. Commit changes to the code!
6. When you're done, push your changes to your fork.
7. Issue a merge request on Gitlab.
8. Wait to hear from one of the core developers.

If you're asked to change your commit message or code, you can amend or rebase and then force push.

If you need more Git expertise, a good resource is the [Git book](#).

## 2.2 Templates

`satnogs-db` uses [Django's template engine templates](#).

## 2.3 Frontend development

Third-party static assets are not included in this repository. The frontend dependencies are managed with `npm`. Development tasks like the copying of assets, code linting and tests are managed with `gulp`.

To download third-party static assets:

1. Install dependencies with `npm`:

```
$ npm install
```

2. Test and copy the newly downloaded static assets:

```
$ ./node_modules/.bin/gulp
```

To add new or remove existing third-party static assets:

1. Install a new dependency:

```
$ npm install <package>
```

2. Uninstall an existing dependency:

```
$ npm uninstall <package>
```

3. Copy the newly downloaded static assets:

```
$ ./node_modules/.bin/gulp assets
```

## 2.4 Documentation

The documentation can be generated locally with `sphinx`:

```
$ cd docs
$ virtualenv -p python3 env
$ source env/bin/activate
$ pip install sphinx_rtd_theme
$ make html SPHINXOPTS="-W"
```

## 2.5 Coding Style

Follow the [PEP8](#) and [PEP257](#) Style Guides.

## 2.6 What to work on

You can check [open issues](#). We regularly open issues for tracking new features. You pick one and start coding.



### 3.1 Updating Python dependencies

To update the Python dependencies:

1. Execute script to refresh `requirements{-dev}.txt` files:

```
$ ./contrib/refresh-requirements.sh
```

2. Stage and commit `requirements{-dev}.txt` files.

### 3.2 Updating frontend dependencies

The frontend dependencies are managed with `npm`. To update the frontend dependencies, while respecting `semver`:

1. Update all the packages listed in `package.json`:

```
$ npm update
```

2. Test and copy the newly downloaded static assets:

```
$ ./node_modules/.bin/gulp
```

3. Stage and commit `package-lock.json` file.



### 4.1 Versioning scheme

This repository follows [PEP-440](#) versioning scheme. All releases must use a *X.Y* segment version which signifies a final project release and is compatible with [Semantic Versioning](#). The versions must be numbered in a consistently increasing fashion. Major *X* will never need to be increased unless the application is completely rewritten. Minor *Y* shall be increased on each release. A Patch or additional segments, as described in SemVer, shall not be used.

### 4.2 Release procedure

To make a new release:

1. Find the next available minor version among the whole set of already present tags in the repository.
2. Create an annotated tag from *master* branch in GitLab with a commit message:

```
Tag version 'X.Y'
```



SatNOGS-DB API is a REST API that provides detailed information about Satellites and Transmitters. This document explains how to use the API to retrieve data for your application.

## 5.1 Using API Data

API access is public to anyone. No form of authentication is required. All API data are freely distributed under the [CC BY-SA](#) license.

## 5.2 API Methods

### 5.2.1 Satellites

The `satellites` method of the *SatNOGS DB API* returns all Satellites currently used for gathering Transmitters data.

#### Endpoint

```
https://db.satnogs.org/api/satellites/
```

#### Examples

Show a specific satellite using its Norad Cat ID:

Request:

```
/api/satellites/25544/?format=json
```

Response:

```
{
  norad_cat_id": 25544,
  "name": "ISS (ZARYA)"
}
```

## 5.2.2 Transmitters

The `transmitters` method of the *SatNOGS DB API* returns all Transmitters data.

### Endpoint

`https://db.satnogs.org/api/transmitters/`

### Parameters

**mode** *Optional string* - Returns only transmitters with matching mode

**satellite\_\_norad\_cat\_id** *Optional string* - Returns only transmitters for the matching satellite

### Examples

Show transmitters of a satellite with a specific Norad Cat ID:

Request:

```
/api/transmitters/?format=json&satellite__norad_cat_id=23439
```

Response:

```
{
  "uuid": "ybJ86zjXzQxDReZ5skY56B",
  "description": "Mode H TLM",
  "alive": true,
  "uplink_low": null,
  "uplink_high": null,
  "downlink_low": 29352000,
  "downlink_high": null,
  "mode": "",
  "invert": true,
  "baud": 0,
  "norad_cat_id": 23439
}
```

Show transmitters of a specific mode:

Request:

```
/api/transmitters/?format=json&mode=AFSK
```

Response:

```
{
  "uuid": "4Yp5mRhdNPURqAuVn77NMk",
  "description": "Mode V/V AFSK Packet",
  "alive": true,
  "uplink_low": 145990000,
  "uplink_high": null,
  "downlink_low": 145800000,
  "downlink_high": null,
  "mode": "AFSK",
  "invert": true,
  "baud": 0,
  "norad_cat_id": 25544
}
```