

# Track geospatial & non-geospatial data edits with GitHub.

- 1 Two basic commands for working with APIs
- 2 What GitHub Actions are
- 3 How to setup »scrapers« for GeoNode
- 4 GeoNode Api endpoints

# 1 Commands you need to know!

## cURL

Is a http Client for your command line

<https://curl.se>

»curl is used in command lines or scripts to transfer data. It is also used in cars, television sets, routers, printers, audio equipment, mobile phones, tablets, settop boxes, media players and is the internet transfer backbone for thousands of software applications affecting *billions of humans* daily.«



-zsh

TextEdit

```
tonischonbuchner@Tonis-MBP ~ % curl https://master.demo.geonode.org/api/
{"base": {"list_endpoint": "/api/base/", "schema": "/api/base/schema/"}, "categories": {"list_
endpoint": "/api/categories/", "schema": "/api/categories/schema/"}, "documents": {"list_endpo
int": "/api/documents/", "schema": "/api/documents/schema/"}, "featured": {"list_endpoint": "/
api/featured/", "schema": "/api/featured/schema/"}, "group_profile": {"list_endpoint": "/api/g
roup_profile/", "schema": "/api/group_profile/schema/"}, "groupcategory": {"list_endpoint": "/
api/groupcategory/", "schema": "/api/groupcategory/schema/"}, "groups": {"list_endpoint": "/ap
i/groups/", "schema": "/api/groups/schema/"}, "keywords": {"list_endpoint": "/api/keywords/", "
schema": "/api/keywords/schema/"}, "layers": {"list_endpoint": "/api/layers/", "schema": "/ap
i/layers/schema/"}, "maps": {"list_endpoint": "/api/maps/", "schema": "/api/maps/schema/"}, "o
wners": {"list_endpoint": "/api/owners/", "schema": "/api/owners/schema/"}, "profiles": {"list_
endpoint": "/api/profiles/", "schema": "/api/profiles/schema/"}, "regions": {"list_endpoint": "
/api/regions/", "schema": "/api/regions/schema/"}, "styles": {"list_endpoint": "/api/styles/
", "schema": "/api/styles/schema/"}, "thesaurus/keywords": {"list_endpoint": "/api/thesaurus/k
eywords/", "schema": "/api/thesaurus/keywords/schema/"}}}%
```

tonischonbuchner@Tonis-MBP ~ %

# 1 Commands you need to know!

Jq

is a command-line JSON processor

<https://stedolan.github.io/jq/>

|

(pipe) can be used to *forward* output  
to another command

```
-zsh
tonischonbuchner@Tonis-MBP ~ % curl https://master.demo.geonode.org/api/ | jq .
% Total    % Received % Xferd  Average Speed   Time     Time     Time  Current
                                         Dload  Upload   Total   Spent   Left  Speed
100  1278  100  1278      0       0  6908      0 --:--:-- --:--:-- --:--:--  6945
{
  "base": {
    "list_endpoint": "/api/base/",
    "schema": "/api/base/schema/"
  },
  "categories": {
    "list_endpoint": "/api/categories/",
    "schema": "/api/categories/schema/"
  },
  "documents": {
    "list_endpoint": "/api/documents/",
    "schema": "/api/documents/schema/"
  },
  "featured": {
```

# **1** The last Command you need to know!

```
Curl https://master.demo.geonode.org/api |  
jq . > somefile.json
```

## 2 Github Actions

... is a module from and for GitHub  
to automate things.

The screenshot shows a GitHub repository page for 'GeoNode / geonode'. The 'Actions' tab is selected. On the left, there's a sidebar for 'Workflows' with a 'Backport' button highlighted in blue. The main area is titled 'Backport' and shows a search bar with 'workflow:Backport'. It displays 2,373 results for backport workflows. The results list five entries, each showing a green checkmark, the workflow name, a brief description, the event (e.g., 'backport-6662-to-3.x'), the time it was run ('2 days ago'), and a '...' button.

Workflow	Description	Event	Time Ago	More
[Backport 3.x] Bump tqdm from 4.51.0 to 4.53.0	Backport #2384: Pull request #6677 closed by afabiani	backport-6662-to-3.x	2 days ago	...
[Backport 3.x] Bump docker from 4.3.1 to 4.4.0	Backport #2383: Pull request #6676 closed by afabiani	backport-6664-to-3.x	2 days ago	...
[Backport 3.x] Bump requests from 2.24.0 to 2.25.0	Backport #2382: Pull request #6674 closed by afabiani	backport-6650-to-3.x	2 days ago	...
[Backport 3.x] Bump urllib3 from 1.25.11 to 1.26.2	Backport #2381: Pull request #6672 closed by afabiani	backport-6647-to-3.x	2 days ago	...
[Backport 3.x] Bump tqdm from 4.51.0 to 4.53.0	Backport #2380: Pull request #6677 labeled by cla-bot	bot	2 days ago	...

<https://docs.github.com/en/free-pro-team@latest/actions>

# A Github Action can be used for:

- + **downloading** content from GeoNode
- + checking and **formating** the output
- + and if the content has changed  
automatically add it to our **git history**

This process is called git scraping.

<https://simonwillison.net/2020/Oct/9/git-scraping/> 🙌

Actions · t-book/geonode-scraper X +

← → ⌂ 🔒 github.com/t-book/geonode-scraper/actions

Search or jump to... / Pull requests Issues Marketplace Explore

t-book / geonode-scraper Unwatch 1 Star 0 Fork 0

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

Workflows [New workflow](#)

All workflows

All workflows Filter workflows

745 results Event ▾ Status ▾ Branch ▾ Actor ▾

Event	Status	Branch	Actor
now	Queued	...	...
1 minute ago	Queued	...	...
1 minute ago	Queued	...	...
6 minutes ago	21s	...	...
8 minutes ago	32s	...	...

**GeoNode Layer scraper**  
GeoNode Layer scraper #178: Scheduled

**GeoNode Profile scraper**  
GeoNode Profile scraper #172: Scheduled

**GeoNode Groups scraper**  
GeoNode Groups scraper #176: Scheduled

**GeoNode Layer CSV scraper**  
GeoNode Layer CSV scraper #169: Scheduled

**GeoNode Layer scraper**  
GeoNode Layer scraper #177: Scheduled

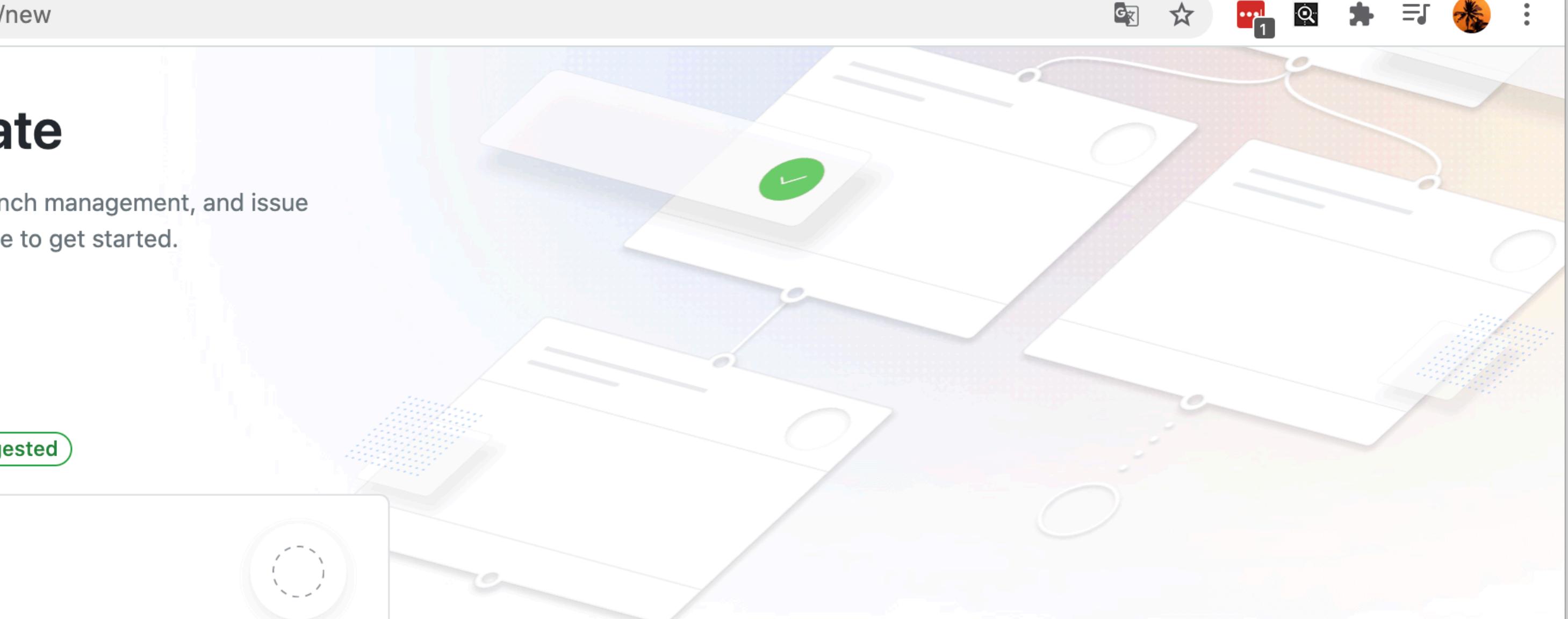
Actions · t-book/geonode-scraper +

github.com/t-book/geonode-scraper/actions/new

# Choose a workflow template

Build, test, and deploy your code. Make code reviews, branch management, and issue triaging work the way you want. Select a workflow template to get started.

Skip this and [set up a workflow yourself →](#)



## Workflows made for your repository Suggested

**Simple workflow**  
By GitHub Actions

Start with a file with the minimum necessary structure.

[Set up this workflow](#)

```
echo Hello, world!
echo Add other actions to build,
echo test, and deploy your project.
```

 actions/starter-workflows

**Deploy your code with these popular services**

**Deploy Node.js to Azure Web App**  
By Microsoft Azure

Build a Node.js project and deploy it to an Azure Web App.



**Deploy to Amazon ECS**  
By Amazon Web Services

Deploy a container to an Amazon ECS service powered by AWS Fargate or Amazon EC2.



**Build and Deploy to GKE**  
By Google Cloud

Build a docker container, publish it to Google Container Registry, and deploy to GKE.



New File

github.com/t-book/geonode-scraper/new/main?filename=.github%2Fworkflows%2Fblank.yml&workflow\_template=blank

Search or jump to... / Pull requests Issues Marketplace Explore

t-book / geonode-scraper Unwatch 1 Star 0 Fork 0

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

geonode-scraper / github / workflows / blank.yml Cancel Start commit ▾

Edit new file Preview Spaces 2 No wrap

```
1 # This is a basic workflow to help you get started with Actions
2
3 name: CI
4
5 # Controls when the action will run.
6 on:
7   # Triggers the workflow on push or pull request events but only for the main branch
8   push:
9     branches: [ main ]
10    pull_request:
11      branches: [ main ]
12
13   # Allows you to run this workflow manually from the Actions tab
14   workflow_dispatch:
15
16   # A workflow run is made up of one or more jobs that can run sequentially or in parallel
17   jobs:
18     # This workflow contains a single job called "build"
19     build:
20       # The type of runner that the job will run on
21       runs-on: ubuntu-latest
```

Use Control + Space to trigger autocomplete in most situations.

Marketplace Documentation

Search Marketplace for Actions

Featured Actions

- Cache** By actions 1.5k Cache artifacts like dependencies and build outputs to improve workflow execution time
- Close Stale Issues** By actions 292 Close issues and pull requests with no recent activity
- Setup .NET Core SDK** By actions 232 Set up a specific version of the .NET Core CLI in the PATH and set up authentication to a private NuGet repository

```
name: GeoNode Profile scraper

on:
  workflow_dispatch:
    schedule:
      - cron: '6,26,46 * * * *'

jobs:
  scheduled:
    runs-on: ubuntu-latest
    steps:
      - name: Check out this repo
        uses: actions/checkout@v2
      - name: Fetch latest data
        run: |-
          curl "https://master.demo.geonode.org/api/profiles/?abstract__icontains=Toni&f_method=or&limit=5&offset=0&purpose__icontains=Toni&username_icontains=Toni" | jq 'del(.requested_time)' > profiles.json
      - name: Commit and push if it changed
        run: |-
          git config user.name "Automated"
          git config user.email "actions@users.noreply.github.com"
          git pull
          git add -A
          timestamp=$(date -u)
          git commit -m "Latest data: ${timestamp}" || exit 0
          git push
```

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          git pull
          git add -A
          timestamp=$(date -u)
          git commit -m "Latest data: ${timestamp}" || exit 0
          git push
```

A screenshot of a GitHub repository page for "t-book/geonode-scrapers".

The repository has 1 unwatched star and 0 forks.

The "Code" tab is selected.

The repository contains 1 branch and 0 tags.

The main file listed is "profiles.json", which was updated on Fri Nov 27 11:20:00 UTC 2020. This file is highlighted with a red box.

Other files listed include ".github/workflows", "groups.json", "swamp.csv", and "swamp.geojson".

The "About" section indicates no description, website, or topics are provided.

The "Releases" section shows no releases published, with a link to "Create a new release".

The "Packages" section shows no packages published, with a link to "Publish your first package".

A message at the bottom encourages adding a README, with a "Add a README" button.

GitHub navigation links at the bottom include: © 2020 GitHub, Inc., Terms, Privacy, Cookie Preferences, Security, Status, Help, Contact GitHub, Pricing, API, Training, Blog, and About.

Latest data: Fri Nov 27 11:20:00 UTC 2020

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

Latest data: Fri Nov 27 11:20:00 UTC 2020

main

Automated committed 2 days ago 1 parent 9a2f939 commit d2ef9bb1751c321abe2c1cad7f2b04de1a9222c0

Showing 1 changed file with 2 additions and 2 deletions.

Unified Split

4 profiles.json

```
@@ -19,7 +19,7 @@
19     "delivery": null,
20     "documents_count": 0,
21     "email": "",
22 -     "fax": null,
23     "first_name": "Toni",
24     "id": 1001,
25     "language": "en",
+
+     "fax": "000",
23     "first_name": "Toni",
24     "id": 1001,
25     "language": "en",
@@ -33,7 +33,7 @@
33     "resource_uri": "/api/profiles/1001/",
34     "timezone": "Europe/Berlin",
35     "username": "toni",
36 -     "voice": null,
37     "zipcode": null
38 },
39 {
```

0 comments on commit d2ef9bb

Lock conversation

swamp — master.demo.geonode.org +

← → ⌂ 🔒 master.demo.geonode.org/layers/geonode\_master\_data:geonode:swamp

GeoNode Data Maps

Search Register Sign in

# swamp

Do you want to filter it?

Pick your download format:

- Excel
  - CSV
  - GML 3.1.1
  - GML 2.0
  - Zipped Shapefile
  - GeoJSON
  - Original Dataset

Close

Download Layer

Metadata Detail

View Layer

Download Metadata

Maps using this layer

List of maps using this layer:

Water-Alaska

Info Attributes Share Ratings Comments

Title swamp

This screenshot shows the GeoNode web application interface. At the top, there's a navigation bar with links for 'Data' and 'Maps'. Below the title 'swamp' is a map of a coastal area with several green polygon features representing swamps. A small OpenStreetMap logo is visible in the bottom left corner of the map area. At the bottom of the map, there are links for 'Info', 'Attributes', 'Share', 'Ratings', and 'Comments'. The main content area has a modal dialog titled 'Download Layer' with tabs for 'Images' and 'Data'. The 'Data' tab is selected, showing a question 'Do you want to filter it?' and a list of download formats under 'Excel'. The 'CSV' option is highlighted with a red border. To the right of the modal, there's a sidebar with buttons for 'Download Layer', 'Metadata Detail', 'View Layer', and 'Download Metadata'. Below the sidebar, there's a section titled 'Maps using this layer' with a link to 'Water-Alaska'. The URL in the browser address bar is 'master.demo.geonode.org/layers/geonode\_master\_data:geonode:swamp'.

```
name: GeoNode Layer CSV scraper

on:
  push:
  workflow_dispatch:
  schedule:
    - cron: '10,30,50 * * * *'

jobs:
  scheduled:
    runs-on: ubuntu-latest
    steps:
      - name: Check out this repo
        uses: actions/checkout@v2
      - name: Fetch latest data
        run: |-
          curl "https://master.demo.geonode.org/geoserver/ows?
service=WFS&version=1.0.0&request=GetFeature&typename=geonode%3Aswamp&outputFormat=csv&srs=EPSG%3A2964" >
swamp.csv
      - name: Commit and push if it changed
        run: |-
          git config user.name "Automated"
          git config user.email „actions@users.noreply.github.com“
          git pull
          git add -A
          timestamp=$(date -u)
          git commit -m "Latest data: ${timestamp}" || exit 0
          git push
```

Latest data: Fri Nov 27 07:50:4 X +

← → ⌂ 🔒 [github.com/t-book/geonode-scrapers/commit/fa87bddc1bc4522624940faa7777099bcd47a984#diff-917abd31ab5b300a5213e6d03a9f52...](https://github.com/t-book/geonode-scrapers/commit/fa87bddc1bc4522624940faa7777099bcd47a984#diff-917abd31ab5b300a5213e6d03a9f52...) 📁 ⭐ 📺 1 🔎 🧩 ⏪ 🌴 ⋮

```
(789247.3243738271 6270946.17821174, 788266.8725058521 6282738.774991536,
784893.3836551236 6286561.596426268, 781565.6303719397 6290525.600350597,
778308.7570399995 6287339.7466437295, 779322.3301594933 6275452.81205884,
782319.2897837823 6270372.912303306, 789247.3243738271 6270946.17821174),
(772499.7947430892 6261483.600069569, 773454.0065741895 6269379.224359508,
771344.6561494031 6277393.010535472, 768011.654167512 6281333.4957651915,
763371.875738009 6280959.001036947, 758731.9147018249 6280586.777049936,
757168.0078275383 6273919.061020815, 758021.8725043634 6261839.814432325,
762196.4189939457 6260651.9370849, 766846.1561613544 6261025.856560494,
772499.7947430892 6261483.600069569), (715540.9972538733 6196113.323713096,
723218.5795901569 6196971.89061433, 722326.2782203468 6208777.724058662,
721434.0557896246 6220582.5013656635, 718214.8341647947 6224893.184019713,
715484.0557049307 6220549.951275791, 710767.9155832008 6220295.206404777,
707321.6912012546 6217419.976182601, 703316.3957343115 6215700.304989743,
701460.6066224403 6209528.354269668, 704182.6783400549 6203636.910131891,
708915.5936992534 6204159.34663152, 712244.8338427697 6200192.902065838,
715540.9972538733 6196113.323713096)))",67,Marsh/Swamp,BH095,1053.002
71 - swamp.70,70,"MULTIPOLYGON (((-208170.57157167513 7390150.83069933,
-601993.4346757545 7158466.398146299, -55637.90840328125 6980776.469409933,
103683.735219078 7258810.732404009, -208170.57157167513 7390150.83069933)))",,,,
72 - swamp.71,71,"MULTIPOLYGON (((960885.6566950204 7123855.9811241105,
797586.8677562845 6884909.134758873, 1080477.058436818 6903247.244791312,
960885.6566950204 7123855.9811241105)))",,,,
```

0 comments on commit fa87bdd

🔒 Lock conversation



Write

Preview

Leave a comment

H B I E <> C ☑

Now comes the fun part.  
We're harvesting geospatial data  
and visualize it with GitHub.

As to make the magic happen we need to  
take care of some steps first.

swamp — master.demo.geonode.org +

← → ⌂ 🔒 master.demo.geonode.org/layers/geonode\_master\_data:geonode:swamp

GeoNode Data Maps

Search Register Sign in

# swamp

Do you want to filter it?

Pick your download format:

- Excel
- CSV
- GML 3.1.1
- GML 2.0
- Zipped Shapefile
- GeoJSON
- Original Dataset

Close

Download Layer

Metadata Detail

View Layer

Download Metadata

Maps using this layer

List of maps using this layer:

Water-Alaska

Info Attributes Share Ratings Comments

Title swamp

This screenshot shows the GeoNode web application interface. At the top, there's a navigation bar with links for 'Data', 'Maps', 'Search', 'Register', and 'Sign in'. Below the navigation is a main content area featuring a map titled 'swamp' showing a coastal region with various land parcels. A modal dialog box is open over the map, titled 'Download Layer', with a tab for 'Data' selected. It asks 'Do you want to filter it?' and 'Pick your download format:' with options for Excel, CSV, GML 3.1.1, GML 2.0, Zipped Shapefile, GeoJSON, and Original Dataset. The 'GeoJSON' option is highlighted with a red box. To the right of the modal, a sidebar lists 'Download Layer', 'Metadata Detail', 'View Layer', and 'Download Metadata'. At the bottom, there's a section for 'Maps using this layer' with a link to 'Water-Alaska'. At the very bottom, there are buttons for 'Info', 'Attributes', 'Share', 'Ratings', and 'Comments', and a title field containing 'Title swamp'.

```
name: GeoNode Layer scraper

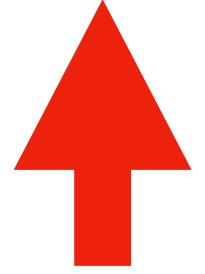
on:
  workflow_dispatch:
  schedule:
    - cron: '8,28,48 * * * *'

jobs:
  scheduled:
    runs-on: ubuntu-latest
    steps:
      - uses: actions/checkout@v2
      - uses: actions/setup-node@v1
        with:
          node-version: '12.x'
      - run: npm install -g geojson-rewind
      - run: |-
          curl "https://master.demo.geonode.org/geoserver/ows?
service=WFS&version=2.0.0&request=GetFeature&typename=geonode%3Aswamp&outputFormat=json&srs=EPSG%3A4326&sr
sName=EPSG%3A4326" | jq 'del(.requested_time,.crs,.timeStamp)' > swamp_tmp.geojson
          - run: geojson-rewind swamp_tmp.geojson > swamp.geojson
          - run: rm swamp_tmp.geojson
          - run: |-
              git config user.name "Automated"
              git config user.email "actions@users.noreply.github.com"
              git pull
              git add -A
              timestamp=$(date -u)
              git commit -m "Latest data: ${timestamp}" || exit 0
              git push
```

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on:
  workflow_dispatch:
  schedule:
    - cron: '8,28,48 * * * *'

jobs:
  scheduled:
    runs-on: ubuntu-latest
    steps:
      - uses: actions/checkout@v2
      - uses: actions/setup-node@v1
        with:
          node-version: '12.x'
      - run: npm install -g geojson-rewind
      - run: |-
          curl "https://master.demo.geonode.org/geoserver/ows?
service=WFS&version=2.0.0&request=GetFeature&typename=geonode%3Aswamp&outputFormat=json&srs=EPSG%3A4326&sr
sName=EPSG%3A4326" | jq 'del(.requested_time,.crs,.timeStamp)' > swamp_tmp.geojson
      - run: geojson-rewind swamp_tmp.geojson > swamp.geojson
      - run: rm swamp_tmp.geojson
      - run: |-
          git config user.name "Automated"
          git config user.email "actions@users.noreply.github.com"
          git pull
          git add -A
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```



```
name: GeoNode Layer scraper

on:
  workflow_dispatch:
  schedule:
    - cron: '8,28,48 * * * *'

jobs:
  scheduled:
    runs-on: ubuntu-latest
    steps:
      - uses: actions/checkout@v2
      - uses: actions/setup-node@v1
        with:
          node-version: '12.x'
      - run: npm install -g geojson-rewind
      - run: |-
          curl "https://master.demo.geonode.org/geoserver/ows?
service=WFS&version=2.0.0&request=GetFeature&typename=geonode%3Aswamp&outputFormat=json&srs=EPSG%3A4326&sr
sName=EPSG%3A4326" | jq 'del(.requested_time,.crs,.timeStamp)' > swamp_tmp.geojson
          - run: geojson-rewind swamp_tmp.geojson > swamp.geojson
          - run: rm swamp_tmp.geojson
          - run: |-
              git config user.name "Automated"
              git config user.email "actions@users.noreply.github.com"
              git pull
              git add -A
              timestamp=$(date -u)
              git commit -m "Latest data: ${timestamp}" || exit 0
              git push
```

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# 4 GeoNode Api endpoints

Visit the GeoNode API

<https://master.demo.geonode.org/api>

# 4 GeoNode Api endpoints

```
// 20201130213751
// https://master.demo.geonode.org/api/
{
  "base": {
    "list_endpoint": "/api/base/",
    "schema": "/api/base/schema/"
  },
  "categories": {
    "list_endpoint": "/api/categories/",
    "schema": "/api/categories/schema/"
  },
  "documents": {
    "list_endpoint": "/api/documents/",
    "schema": "/api/documents/schema/"
  },
  "featured": {
    "list_endpoint": "/api/featured/",
    "schema": "/api/featured/schema/"
  },
  "group_profile": {
    "list_endpoint": "/api/group_profile/",
    "schema": "/api/group_profile/schema/"
  },
  "groupcategory": {
    "list_endpoint": "/api/groupcategory/",
    "schema": "/api/groupcategory/schema/"
  },
  "groups": {
    "list_endpoint": "/api/groups/",
    "schema": "/api/groups/schema/"
  },
  "keywords": {
    "list_endpoint": "/api/keywords/",
    "schema": "/api/keywords/schema/"
  },
  "layers": [
    {
      "list_endpoint": "/api/layers/",
      "schema": "/api/layers/schema/"
    }
  ],
  "node": {
    "list_endpoint": "/api/node/",
    "schema": "/api/node/schema/"
  }
}
```

The screenshot shows a web browser window with the title "API v2 - REST — GeoNode 3.1". The URL in the address bar is [docs.geonode.org/en/master/api/V2/index.html](https://docs.geonode.org/en/master/api/V2/index.html). The page content is the API v2 - REST documentation for GeoNode 3.1. On the left, there is a sidebar with a dark background containing navigation links for "INSTALLING", "CONFIGURING (BASIC)", "CONFIGURING (INTERMEDIATE)", "CONFIGURING (ADVANCED)", and "ADMINISTERING". The main content area has a light background and displays the "API v2 - REST" section. It includes a "Docs" link, a "GeoNode API Schema" link, and a "Edit on GitHub" button. The main heading is "API v2 - REST". Below it is a "OpenAPI 3.0 Schema" section. The first endpoint listed is "GET /api/v2/", which has a "Query Parameters" section containing a single item: "format (string) –". It also has a "Status Codes" section containing one item: "200 OK – No response body". The second endpoint listed is "GET /api/v2/documents/", which is described as "API endpoint that allows documents to be viewed or edited." It has a "Query Parameters" section with several items: "format (string) –", "ordering (string) – Which field to use when ordering the results.", "page (integer) – A page number within the paginated result set.", "page\_size (integer) – Number of results to return per page.", and "search (string) – A search term.". It also has a "Status Codes" section.

## API v2 - REST

OpenAPI 3.0 Schema

**GET /api/v2/**

Query Parameters

- **format (string) –**

Status Codes

- **200 OK** – No response body

**GET /api/v2/documents/**

API endpoint that allows documents to be viewed or edited.

Query Parameters

- **format (string) –**
- **ordering (string) –** Which field to use when ordering the results.
- **page (integer) –** A page number within the paginated result set.
- **page\_size (integer) –** Number of results to return per page.
- **search (string) –** A search term.

Status Codes

<https://docs.geonode.org/en/master/api/V2/index.html>

# Keep in mind.

Every action which requests content, puts load on your server.

**Security:** You can set your repository to private access. **GithubSecrets** and **basic auth headers** can be used for requesting private resources.

# Keep in mind.

I would not suggest to use this technic with heavy layers and of course not with binary data.

Find my examples here  
<https://github.com/t-book/track-geonode>

Thanks  
Danke  
Tak  
Toda  
Grazie  
děkuji  
gracias  
dank je wel  
благодарам  
شکرا  
merci