

# OGC API

Alles wird gut!





service.datacove.eu/geoserver/ows?service=WFS&version=2.0&  
request=GetFeature&typeName=tn-a:AirNode&outputFormat=gml32&  
featureID=AT.0012.6bed1778-d6bf-11e8-9f8b-f2801f1b9fd1.tn-a.AerodromeNode.1

```
<net:inspireId>  
<base:Identifier>  
<base:localId>tn-a:AerodromeNode.1</base:localId>  
<base:namespaces>  
  https://inspire.austrocontrol.at/AT.0012.6bed1778-d6bf-11e8-9f8b-f2801f1b9fd1.tn-a.AerodromeNode.1  
</base:namespaces>  
<tn-a:AerodromeNode>  
<base:versionId>2019-02-01</base:versionId>  
</tn-a:AerodromeNode>  
</base:Identifier>  
</net:inspireId>  
<net:geometry>  
  <gml:Point gml:id="AT.0012.6bed1778-d6bf-11e8-9f8b-f2801f1b9fd1">  
    <gml:coordinates>48.41805811778-d6bf-11e8-9f8b-f2801f1b9fd1:15.21555556</gml:coordinates>  
    <gml:srsDimension="2" srs="urn:ogc:def:crs:EPSG::31466" />  
  </gml:Point>  
</net:geometry>  
</base:versionId>  
</base:Identifier>  
</net:inspireId>
```









[http://brgm-dev.geo-solutions.it/geoserver/wfs3/collections/eposb\\_\\_Borehole/items/06268X0017](http://brgm-dev.geo-solutions.it/geoserver/wfs3/collections/eposb__Borehole/items/06268X0017)

```

{
  "type": "FeatureCollection",
  "features": [{
    "type": "Feature",
    "id": "06268X0017",
    "geometry": {
      "type": "Point",
      "coordinates": [5.3596, 46.3427]
    },
    "properties": {
      "@featureType": "Borehole",
      "sampledFeature": [{
        "@href": "https://sweet.jpl.nasa.gov/2.3/realmEarth/.../reference.",
        "@title": "Lithosphere"
      }],
      "@href": "0101432",
      "ON"
    }
  }
}

```



# Overview

- What is OpenAPI?
- Why OpenAPI
- OGC API
- OGC API Features – the long awaited WFS3

Spiel Tip:

<http://ows.geo-solutions.it/geoserver/ogc/features/>

# OpenAPI

- API: Application Programming Interface
- OpenAPI
  - Created by the OpenAPI Initiative (OAI)  
<https://www.openapis.org/about>
  - Utilize RESTful approach
  - Selfdocumenting through Swagger Specifications



# Why OpenAPI

- RESTful
  - Clean URI structure
  - Datasets and Features can be identified and retrieved via their URI





[http://brgm-dev.geo-solutions.it/geoserver/wfs3/collections/eposb\\_\\_Borehole/items/06268X0017](http://brgm-dev.geo-solutions.it/geoserver/wfs3/collections/eposb__Borehole/items/06268X0017)

```
{
  "type": "FeatureCollection",
  "features": [{
    "type": "Feature",
    "id": "06268X0017",
    "geometry": {
      "type": "Point",
      "coordinates": [5.3596, 46.3427]
    },
    "properties": {
      "@featureType": "Borehole",
      "sampledFeature": [{
        "@href": "https://sweet.jpl.nasa.gov/2.3/realmEarth/.../reference.",
        "@title": "Lithosphere"
      }],
      "parent": {
        "@href": "0101432",
        "type": "Borehole"
      }
    }
  }]
```



# Why OpenAPI

- RESTful
  - Clean URI structure
  - Datasets and Features can be identified and retrieved via their URI
- JSON
  - Far easier to parse and utilize





[http://brgm-dev.geo-solutions.it/geoserver/wfs3/collections/eposb\\_\\_Borehole/items/06268X0017](http://brgm-dev.geo-solutions.it/geoserver/wfs3/collections/eposb__Borehole/items/06268X0017)

```
{
  "type": "FeatureCollection",
  "features": [{
    "type": "Feature",
    "id": "06268X0017",
    "geometry": {
      "type": "Point",
      "coordinates": [5.3596, 46.3427]
    },
    "properties": {
      "@featureType": "Borehole",
      "sampledFeature": [{
        "@href": "https://sweet.jpl.nasa.gov/2.3/realmEarth/.../reference.",
        "@title": "Lithosphere"
      }],
      "@href": "0101432",
      "type": "Lithosphere"
    }
  }]
```



# Why OpenAPI

- RESTful
  - Clean URI structure
  - Datasets and Features can be identified and retrieved via their URI
- JSON
  - Far easier to parse and utilize
- Self Describing
  - Swagger documentation provides full description of API



# WFS 3.0 server 2.16-SNAPSHOT OAS3

<http://brgm-dev.geo-solutions.it:80/geoserver/wfs3/api?f=application%2Fopenapi%2Bjson%3Bversion%3D3.0>

[WFS specification](#)

## Server

<http://brgm-dev.geo-solutions.it:80/geoserver/wfs3> ▾

## Capabilities Essential characteristics of this API including information about the data. ▾

**GET** / landing page of this API

**GET** /conformance information about standards that this API conforms to

**GET** /collections describe the feature collections in the dataset

**GET** /collections/{collectionId} describe the {collectionId} feature collection

## Features Access to data (features). ▾

**GET** /collections/{collectionId}/items retrieve features of feature collection {collectionId}

**GET** /collections/{collectionId}/items/{featureId} retrieve a feature; use content negotiation to request HTML or GeoJSON



# OGC API

- Consists of the following sections
  - OGC API-Common  
V.0.0.5 published 2019-11-18  
<http://docs.opengeospatial.org/is/17-069r3/17-069r3.html>
  - **OGC API - Features - Part 1: Core**  
V.1.0 published 2019-10-14  
[https://github.com/opengeospatial/oapi\\_common](https://github.com/opengeospatial/oapi_common)
  - OGC API – Coverages  
Work-in-Progress  
[https://github.com/opengeospatial/ogc\\_api\\_coverages](https://github.com/opengeospatial/ogc_api_coverages)



# OGC API Features

- Landing page: Base URI for API

<http://brgm-dev.geo-solutions.it/geoserver/wfs3/>

- API Definition

<http://brgm.../wfs3/api>

- Current swagger documentation

- API Collections

<http://brgm.../wfs3/collections>

- Datasets

- API Conformance

<http://brgm.../wfs3/conformance>

- Conformance to specifications

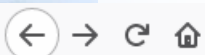


# OGC API Features

- API Collections – all Datasets

<http://.../collections>





## GeoServer Feature Collections

This document lists all the collections available in the Features service.  
This document is also available as [application/x-yaml](#), [application/json](#), [application/cbor](#).

### syria\_vtp:building\_s

- **Title:** building\_s
- **Geographic extents:**
  - 35.721, 32.377, 42.37, 37.324.
- Data as [HTML](#). Collection items are also available in the following formats:

### syria\_vtp:built\_up\_area\_s

- **Title:** built\_up\_area\_s
- **Geographic extents:**
  - 35.725, 32.346, 42.38, 37.322.
- Data as [HTML](#). Collection items are also available in the following formats:

### syria\_vtp:cemetery\_s

- **Title:** cemetery\_s
- **Geographic extents:**
  - 35.784, 32.407, 42.146, 37.185.
- Data as [HTML](#). Collection items are also available in the following formats:

### syria\_vtp:crop\_land\_s

- **Title:** crop\_land\_s
- **Geographic extents:**
  - 35.748, 32.314, 42.372, 37.322.
- Data as [HTML](#). Collection items are also available in the following formats:





# OGC API Features

- API Collections – all Datasets

<http://.../collections>

- Specific Collection – Dataset Description

<http://.../collections/{collectionId}>





## syria\_vtp:building\_s

- **Title:** building\_s
- **Geographic extents:**
  - 35.721, 32.377, 42.37, 37.324.
- Data as [HTML](#). Collection items are also available in the following formats:

## Feature schema

- **FCSubtype:** String
- **F\_CODE:** String
- **ADR:** String
- **AOO:** BigDecimal
- **ARA:** BigDecimal
- **ATB:** String
- **AWP:** String
- **BEN:** String
- **BNF:** Long
- **CAA:** String
- **FFN:** String
- **FFN2:** String
- **FFN3:** String
- **HGT:** BigDecimal
- **HST:** String
- **HST2:** String
- **HST3:** String
- **LMC:** String
- **LZN:** BigDecimal
- **MFB:** String
- **MUB:** String
- **OTH:** String
- **PCF:** String
- **RLE:** String
- **SSR:** String
- **SSR2:** String
- **SSR3:** String



# OGC API Features

- API Collections – all Datasets  
<http://.../collections>
- Specific Collection – Dataset Description  
<http://.../collections/{collectionId}>
- Items of a Collection – Dataset  
<http://.../collections/{collectionId}/items>



JSON Raw Data Headers

Save Copy Collapse All Filter JSON

```
type: "FeatureCollection"  
▶ features: [...]  
numberMatched: 56152  
numberReturned: 50  
timeStamp: "2019-12-03T19:37:36.497Z"  
▶ links: [...]  
▶ crs: {...}
```

JSON Raw Data Headers

Save Copy Collapse All Filter JSON

```
type: "FeatureCollection"
▼ features:
  ▼ 0:
    type: "Feature"
    id: "building_s.1"
    ▼ geometry:
      type: "MultiPolygon"
      ► coordinates: [...]
      geometry_name: "geom"
    ▼ properties:
      FCSubtype: "BUILDING_S"
      F_CODE: "Building"
      ADR: "No Information"
      AOO: -999999
      ARA: -999999
      ATB: "No Information"
      AWP: "No Information"
      BEN: "noInformation"
      BNF: -999999
      CAA: "No Information"
```



JSON Raw Data Headers

Save Copy Collapse All Filter JSON

```
type: "FeatureCollection"
features: [...]
numberMatched: 56152
numberReturned: 50
timeStamp: "2019-12-03T19:37:36.497Z"
links:
  0:
    title: "Next page"
    type: "application/geo+json"
    rel: "next"
    href: "http://ows.geo-solutions.it/geoserver/ogc/features/collections/syria_vtp%3Abuilding_s/items?startIndex=50&f=application%2Fgeo%2Bjson&limit=50"
  1:
    title: "This document as text/html"
    type: "text/html"
    rel: "alternate"
    href: "http://ows.geo-solutions...ng_s/items?f=text%2Fhtml"
  2:
    title: "This document as applica...nd.google-earth.kml+xml"
    type: "application/vnd.google-earth.kml+xml"
```

JSON Raw Data Headers

Save Copy Collapse All Filter JSON

```
type: "FeatureCollection"
▶ features: [...]
numberMatched: 56152
numberReturned: 50
timeStamp: "2019-12-03T19:37:36.497Z"
▶ links: [...]
▼ crs:
  type: "name"
  ▼ properties:
    name: "urn:ogc:def:crs:EPSG::4326"
```



# OGC API Features

- API Collections – all Datasets

<http://.../collections>

- Specific Collection – Dataset Description

<http://.../collections/{collectionId}>

- Items of a Collection – Dataset

<http://.../collections/{collectionId}/items>

- Specific Item – Feature

<http://.../collections/{collectionId}/items/{featureId}>

JSON Raw Data Headers

Save Copy Collapse All Expand All Filter JSON

```
type: "Feature"
id: "building_s.1"
▼ geometry:
  type: "MultiPolygon"
  ▼ coordinates:
    ► 0: [...]
  geometry_name: "geom"
▼ properties:
  FCSubtype: "BUILDING_S"
  F_CODE: "Building"
  ADR: "No Information"
  A00: -999999
  ARA: -999999
  ATB: "No Information"
  AWP: "No Information"
  BEN: "noInformation"
  BNF: -999999
  CAA: "No Information"
  FFN: "No Information"
```



# Caveats

## GeoJSON Constraints:

- CRS WGS 84
- Defined base structure

```
type: "Feature"  
id: "building_s.1"  
▶ geometry: {...}  
  geometry_name: "geom"  
▶ properties: {...}  
▶ bbox: [...]  
▶ links: [...]
```

Filtering to be defined in next standard section

# Outlook

- JRC currently evaluating usability in INSPIRE
- Alignment of IR requirements work-in-progress
- API4INSPIRE Project just started, will be evaluating usability of:
  - OGC API - Features
  - SensorThings API
- For more, come to Dubrovnik 12-15 May



# INSPIRE Clusters → Forum

## Warning

In the process of upgrading the INSPIRE Clusters to the Forum, it seems all information on **topics** users had **subscribed** to got **lost**

Please log on to

<https://inspire.ec.europa.eu/forum/>

And reconfigure your user!!!

# Thanks for your attention!



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Kathi@DataCove.eu

