

# WFS 3.0 - STANDARD

*Jari Reini*

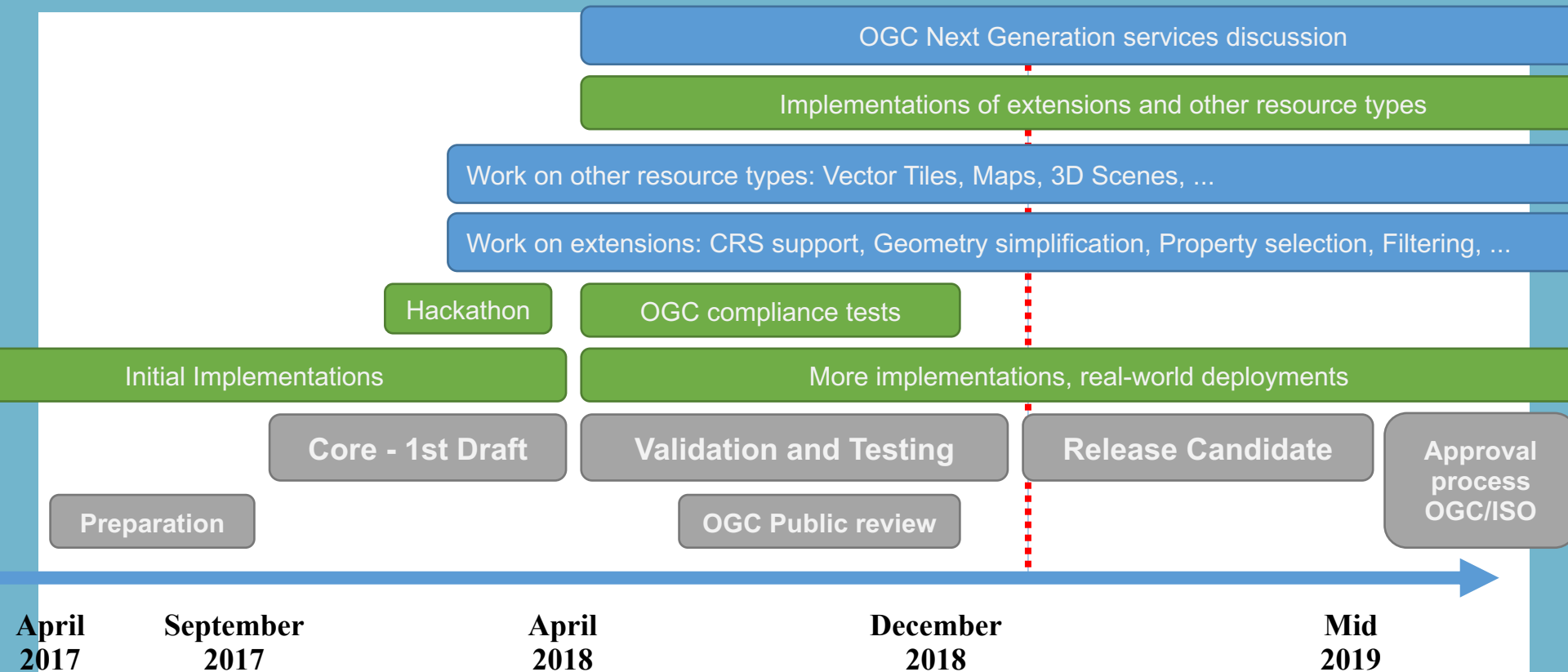
*INSPIRE MIG-T  
55th – 3-4 April 2019  
Ispra, Italy*



**MML**  
PAIKKA-  
TIETO-  
KESKUS FGI

# WEB FEATURE SERVICE 3.0

- New OGC API
  - OpenAPI
  - Non-compatible with WFS 2.X (GetCapabilities, GetFeature)
- Work in progress
- Modular, "Core" plus extensions
- Development in [GitHub](#)



April 2017

September 2017

April 2018

December 2018

Mid 2019

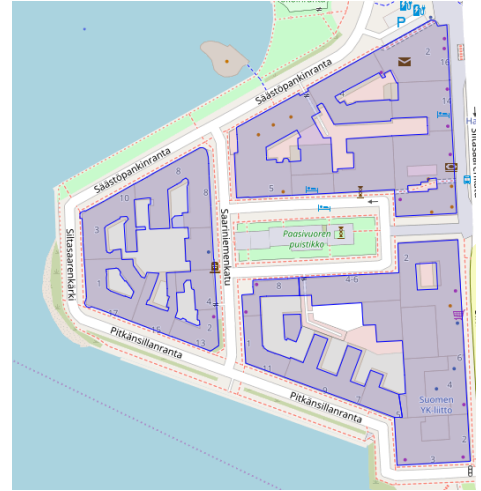


# WFS 3.0 BASICS



# WFS 3.0 - CORE

- REST + JSON
- WGS84
- Search via BBOX
- Simple filtering (e.g. "placename"=Helsinki\*)



```
...<\/pre>
```



# NLSFI implementation



# MML GEOGRAPHIC NAMES (WFS 3.0) BETA (LANDING PAGE)

- <https://beta-paikkatieto.maanmittauslaitos.fi/geographic-names/wfs3/v1/>

```
{
  "links" : [ {
    "href" : "https://beta-paikkatieto.maanmittauslaitos.fi/geographic-names/wfs3/v1/",
    "rel" : "self",
    "type" : "application/json",
    "title" : "This document"
  }, {
    "href" : "https://beta-paikkatieto.maanmittauslaitos.fi/geographic-names/wfs3/v1/api",
    "rel" : "service",
    "type" : "application/json",
    "title" : "The API definition"
  }, {
    "href" : "https://beta-paikkatieto.maanmittauslaitos.fi/geographic-names/wfs3/v1/conformance",
    "rel" : "conformance",
    "type" : "application/json",
    "title" : "WFS 3.0 conformance classes implemented by this server"
  }, {
    "href" : "https://beta-paikkatieto.maanmittauslaitos.fi/geographic-names/wfs3/v1/collections",
    "rel" : "data",
    "type" : "application/json",
    "title" : "Metadata about the feature collections"
  } ]
}
```

# API

- <https://beta-paikkatieto.maanmittauslaitos.fi/geographic-names/wfs3/v1/api>

```
{
  "openapi" : "3.0.1",
  "info" : {
    "title" : "Geographic Names (WFS 3.0) BETA",
    "description" : "BETA version of the Web Feature Service API for places, place names and map names of the Geographic Names Register provided by the National Land Survey of Finland. The API is based on the WFS 3.0 standard draft.",
    "termsOfService" : "https://www.maanmittauslaitos.fi/kartat-ja-paikkatieto/asiointunevalle-kayttajalle/kartta-ja-paikkatietojen-rajapintapalvelut-12",
    "contact" : {
      "name" : "Technical support for APIs",
      "url" : "https://www.maanmittauslaitos.fi/tietoa-maanmittauslaitoksesta/yhteystiedot/verkkopalveluiden-tuki",
      "email" : "sovellustuki@maanmittauslaitos.fi"
    },
    "license" : {
      "name" : "Data accessed from the API is licensed by the National Land Survey open data CC 4.0 licence.",
      "url" : "https://www.maanmittauslaitos.fi/en/opendata-licence-cc40"
    },
    "version" : "1.0"
  },
  "servers" : [ {
    "url" : "https://beta-paikkatieto.maanmittauslaitos.fi/geographic-names/wfs3/v1",
    "description" : "Production"
  } ],
  "tags" : [ {
    "name" : "Capabilities",
    "description" : "Essential characteristics of this API including information about the data."
  } ],
  {
    "name" : "Features",
    "description" : "Access to data (features).",
  },
  "paths" : {
    "/" : {
      "get" : {
        "tags" : [ "Capabilities" ],
        "summary" : "Landing page of this API",
        "description" : "The landing page provides links to the API definition, the Conformance statements and the metadata about the feature data in this dataset.",
        "operationId" : "getLandingPage",
        "responses" : {
          "200" : {
            "description" : "Links to the API capabilities",
            "content" : {
              "application/json" : {
                "schema" : {
                  "$ref" : "#/components/schemas/root"
                }
              }
            }
          }
        }
      }
    }
  }
}
```



# API DEF IN HTML

<https://beta-karttakuva.maanmittauslaitos.fi/openapi/geographic-names-openapi-html/>

- API SUMMARY
- API METHODS - CAPABILITIES
  - describeCollection
  - describeCollections
  - getLandingPage
  - getRequirementsClasses
- API METHODS - FEATURES
  - getMapnames
  - getMapnamesById
  - getMapnamesByIdGml
  - getMapnamesByIdHtml
  - getMapnamesGml
  - getMapnamesHtml
  - getPlacenames
  - getPlacenamesById
  - getPlacenamesByIdGml
  - getPlacenamesByIdHtml
  - getPlacenamesGml
  - getPlacenamesHtml
  - getPlacenamesSimple
  - getPlacenamesSimpleById
  - getPlacenamesSimpleByIdGml
  - getPlacenamesSimpleByIdHtml
  - getPlacenamesSimpleGml
  - getPlacenamesSimpleHtml

## Geographic Names (WFS 3.0) BETA

### API and SDK Documentation

Version: 1.0

BETA version of the Web Feature Service API for places, place names and map names of the Geographic Names Register provided by the National Land Survey of Finland. The API is based on the WFS 3.0 standard draft.

## Capabilities

### describeCollection

Describe the {collectionId} feature collection

Metadata about the {collectionId} collection shared by this API

GET

```
/collections/{collectionId}
```

### Usage and SDK Samples

Curl Java Android Obj-C JavaScript C# PHP Perl Python Rust

```
curl -X GET "https://beta-paikkatieto.maanmittauslaitos.fi/geographic-names/wfs3/v1/collections/{collectionId}"
```

# EXAMPLES

A feature with ID

[https://beta-paikkatieto.maanmittauslaitos.fi/geographic-names/wfs3/v1/collections/placenames/items/PN\\_40889621](https://beta-paikkatieto.maanmittauslaitos.fi/geographic-names/wfs3/v1/collections/placenames/items/PN_40889621)

A feature with ID, format GML

[https://beta-paikkatieto.maanmittauslaitos.fi/geographic-names/wfs3/v1/collections/placenames/items/PN\\_40889621.gml](https://beta-paikkatieto.maanmittauslaitos.fi/geographic-names/wfs3/v1/collections/placenames/items/PN_40889621.gml)

First 100 features

<https://beta-paikkatieto.maanmittauslaitos.fi/geographic-names/wfs3/v1/collections/placenames/items?limit=100>

# EXAMPLES

Search using (CRS not yet in standard)

<https://beta-paikkatieto.maanmittauslaitos.fi/geographic-names/wfs3/v1/collections/placenames/items?bbox=490000,6904000,492000,6906000&bbox-crs=http://www.opengis.net/def/crs/EPSSG/0/3067>

One municipality (837 = Tampere) all placenames, 100 set

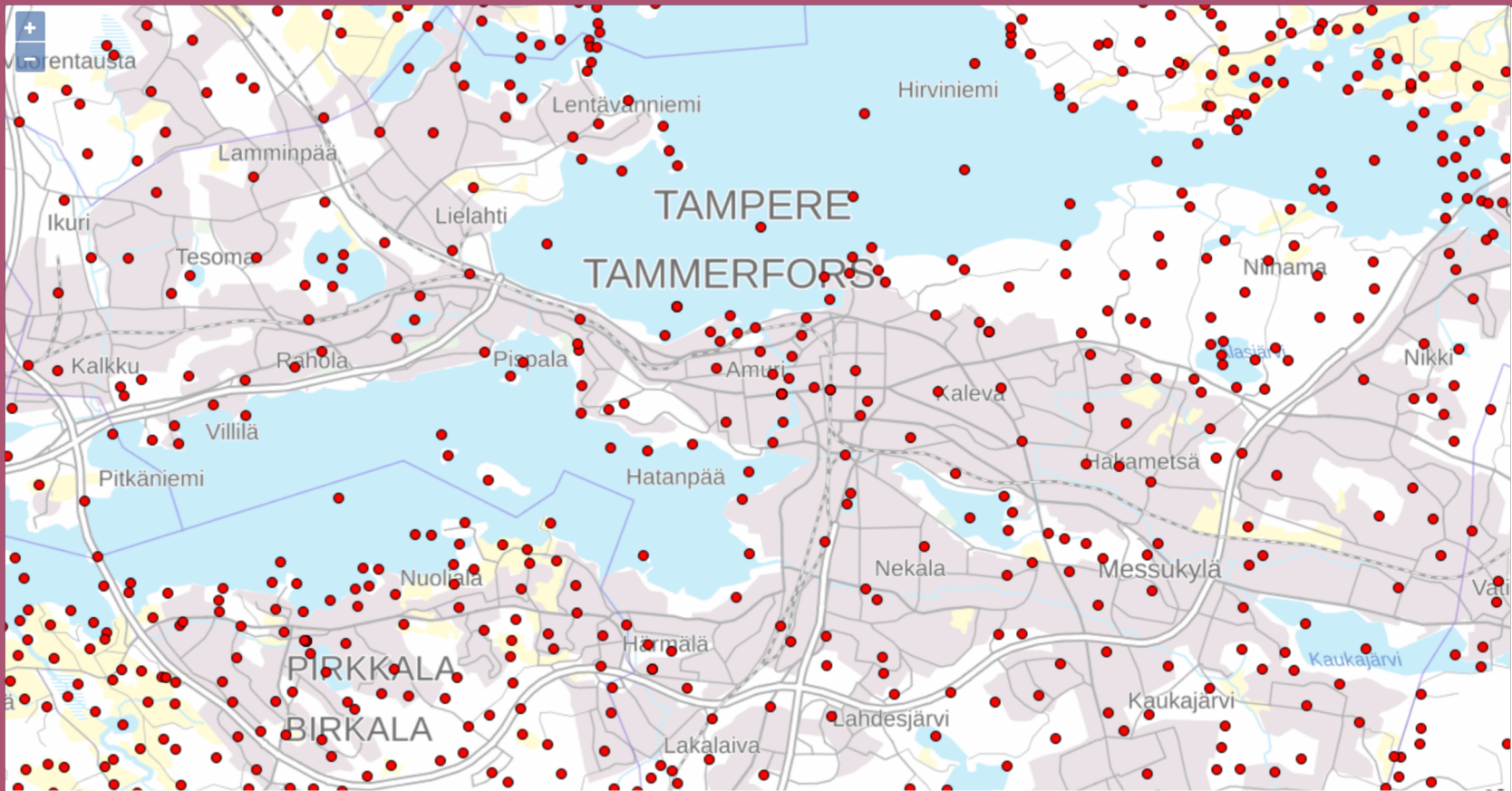
<https://beta-paikkatieto.maanmittauslaitos.fi/geographic-names/wfs3/v1/collections/placenames/items?municipality=837&limit=100>

# EXAMPLES

All nature place, at least 30 characters

[https://beta-paikkatieto.maanmittauslaitos.fi/geographic-names/wfs3/v1/collections/placenames/items?crs=http://www.opengis.net/def/crs/EPSG/0/3067&placeTypeCategory=1,2&language=fin&spelling=??\\*](https://beta-paikkatieto.maanmittauslaitos.fi/geographic-names/wfs3/v1/collections/placenames/items?crs=http://www.opengis.net/def/crs/EPSG/0/3067&placeTypeCategory=1,2&language=fin&spelling=??*)

```
{ "type": "FeatureCollection", "features": [ { "type": "Feature", "id": "PN_40891981", "properties": { "placeNameId": 40891981, "placeNameVersionId": 1, "spelling": "Rannimainen Vierilauttamurista", "language": "fin", "languageOfficiality": 1, "languageDominance": 1, "placeNameSource": 1, "placeNameStatus": 5, "placeNameCreationTime": "2008-12-05T22:00:00Z", "placeNameModificationTime": "2008-12-05T22:00:00Z", "placeNameDeletionTime": null, "placeId": 10891821, "placeVersionId": 2, "placeType": 1010210, "placeTypeDescription": 1010210, "placeTypeCategory": 1, "placeTypeGroup": 101, "placeTypeSubgroup": 10102, "placeElevation": 358, "tm35MapSheet": "U5412H1", "gslsMapSheet": "471408C", "rescueGridSquare": "29R1B4", "municipality": "732", "subregion": "194", "region": "19", "scaleRelevance": 50000, "placeCreationTime": "2008-12-05T22:00:00Z", "placeModificationTime": "2016-09-12T09:32:39Z", "placeDeletionTime": null, "geometry": { "type": "Point", "coordinates": [ 616291.631, 7502075.35 ] } }, { "type": "Feature", "id": "PN_40900274", "properties": { "placeNameId": 40900274, "placeNameVersionId": 1, "spelling": "Keskimmäinen Pierkivaaranjärvi", "language": "fin", "languageOfficiality": 1, "languageDominance": 1, "placeNameSource": 1, "placeNameStatus": 5, "placeNameCreationTime": "2008-12-05T22:00:00Z", "placeNameModificationTime": "2008-12-05T22:00:00Z", "placeNameDeletionTime": null, "placeId": 10900057, "placeVersionId": 2, "placeType": 2010210, "placeTypeDescription": 2010210, "placeTypeCategory": 2, "placeTypeGroup": 201, "placeTypeSubgroup": 20102, "placeElevation": 168, "tm35MapSheet": "W5211C2", "gslsMapSheet": "384202C", "rescueGridSquare": "32Q3C3", "municipality": "148", "subregion": "197", "region": "19", "scaleRelevance": 50000, "placeCreationTime": "2008-12-05T22:00:00Z", "placeModificationTime": "2015-11-02T09:11:43Z", "placeDeletionTime": null, "parallelName": [ { "placeNameId": 40820009, "placeNameVersionId": 1, "spelling": "Koskämuš Piergivärjärvi", "language": "smn", "languageOfficiality": 1, "languageDominance": 2, "placeNameSource": 1, "placeNameStatus": 5, "placeNameCreationTime": "2008-12-05T22:00:00Z", "placeNameModificationTime": "2008-12-05T22:00:00Z", "placeNameDeletionTime": null, "geometry": { "type": "Point", "coordinates": [ 506169.997, 7679885.172 ] } }, { "type": "Feature", "id": "PN_40891901", "properties": { "placeNameId": 40891901, "placeNameVersionId": 1, "spelling": "Kuorvusseljän Männikkömuristat", "language": "fin", "languageOfficiality": 1, "languageDominance": 1, "placeNameSource": 1, "placeNameStatus": 5, "placeNameCreationTime": "2008-12-05T22:00:00Z", "placeNameModificationTime": "2008-12-05T22:00:00Z", "placeNameDeletionTime": null, "placeId": 10891741, "placeVersionId": 2, "placeType": 1010205, "placeTypeDescription": 1010205, "placeTypeCategory": 1, "placeTypeGroup": 101, "placeTypeSubgroup": 10102, "placeElevation": 391, "tm35MapSheet": "U5412D2", "gslsMapSheet": "471405D", "rescueGridSquare": "29R1B3", "municipality": "732", "subregion": "194", "region": "19", "scaleRelevance": 50000, "placeCreationTime": "2008-12-05T22:00:00Z", "placeModificationTime": "2016-09-12T09:32:39Z", "placeDeletionTime": null, "geometry": { "type": "Point", "coordinates": [ 602188.862, 7505006.267 ] } }, { "type": "Feature", "id": "PN_40346104", "properties": { "placeNameId": 40346104, "placeNameVersionId": 1, "spelling": "Patanan tekojärven täyttökana", "language": "fin", "languageOfficiality": 1, "languageDominance": 1, "placeNameSource": 1, "placeNameStatus": 5, "placeNameCreationTime": "2008-12-05T22:00:00Z", "placeNameModificationTime": "2008-12-05T22:00:00Z", "placeNameDeletionTime": null, "placeId": 10346104, "placeVersionId": 2, "placeType": 2010230, "placeTypeDescription": 2010230, "placeTypeCategory": 2, "placeTypeGroup": 201, "placeTypeSubgroup": 20102, "placeElevation": 127, "tm35MapSheet": "P4214G2", "gslsMapSheet": "233201B", "rescueGridSquare": "23O1A4", "municipality": "924", "subregion": "161", "region": "16", "scaleRelevance": 100000, "placeCreationTime": "2008-12-05T22:00:00Z", "placeModificationTime": "2016-12-16T11:51:37Z", "placeDeletionTime": null, "geometry": { "type": "Point", "coordinates": [ 351873.364, 7019954.5 ] } }, { "type": "Feature", "id": "PN_40198372", "properties": { "placeNameId": 40198372, "placeNameVersionId": 1, "spelling": "Kalamäen Heinäaitojenvälakangas", "language": "fin", "languageOfficiality": 1, "languageDominance": 1, "placeNameSource": 1, "placeNameStatus": 5, "placeNameCreationTime": "2008-12-05T22:00:00Z", "placeNameModificationTime": "2008-12-05T22:00:00Z", "placeNameDeletionTime": null, "placeId": 10198372, "placeVersionId": 2, "placeType": 1020105, "placeTypeDescription": 1020105, "placeTypeCategory": 1, "placeTypeGroup": 102, "placeTypeSubgroup": 10201, "placeElevation": 138, "tm35MapSheet": "N5244E1", "gslsMapSheet": "422106B", "rescueGridSquare": "22R1A3", "municipality": "090", "subregion": "103", "region": "10", "scaleRelevance": 25000, "placeCreationTime": "2008-12-05T22:00:00Z", "placeModificationTime": "2017-05-05T10:32:47Z", "placeDeletionTime": null, "geometry": { "type": "Point", "coordinates": [ 584633.228, 6944199.164 ] } }, { "type": "Feature", "id": "PN_40376782", "properties": { "placeNameId": 40376782, "placeNameVersionId": 1, "spelling": "Keskimmäinen Mustankunlampi", "language": "fin", "languageOfficiality": 1, "languageDominance": 1, "placeNameSource": 1, "placeNameStatus": 5, "placeNameCreationTime": "2008-12-05T22:00:00Z", "placeNameModificationTime": "2008-12-05T22:00:00Z", "placeNameDeletionTime": null, "placeId": 10376782, "placeVersionId": 2, "placeType": 2010210, "placeTypeDescription": 2010210, "placeTypeCategory": 2, "placeTypeGroup": 201, "placeTypeSubgroup": 20102, "placeElevation": 101, "tm35MapSheet": "S442161", "gslsMapSheet": "254404D", "rescueGridSquare": "27P3A1", "municipality": "751", "subregion": "192", "region": "19", "scaleRelevance": 25000, "placeCreationTime": "2008-12-05T22:00:00Z", "placeModificationTime": "2015-11-02T09:11:43Z", "placeDeletionTime": null, "geometry": { "type": "Point", "coordinates": [ 422595.674, 7314996.748 ] } }, { "type": "Feature", "id": "PN_40628970", "properties": { "placeNameId": 40628970, "placeNameVersionId": 1, "spelling": "Ensimmäinen Salonalustakangas", "language": "fin", "languageOfficiality": 1, "languageDominance": 1, "placeNameSource": 1, "placeNameStatus": 5, "placeNameCreationTime": "2008-12-05T22:00:00Z", "placeNameModificationTime": "2008-12-05T22:00:00Z", "placeNameDeletionTime": null, "placeId": 10628950, "placeVersionId": 2, "placeType": 1020105, "placeTypeDescription": 1020105, "placeTypeCategory": 1, "placeTypeGroup": 102, "placeTypeSubgroup": 10201, "placeElevation": 30, "tm35MapSheet": "Q412481", "gslsMapSheet": "232409A", "rescueGridSquare": "24N2D2", "municipality": "272", "subregion": "162", "region": "16", "scaleRelevance": 25000, "placeCreationTime": "2008-12-05T22:00:00Z", "placeModificationTime": "2016-12-28T13:33:16Z", "placeDeletionTime": null, "geometry": { "type": "Point", "coordinates": [ 333760.76, 7092264.909 ] } }, { "type": "Feature", "id": "PN_40347121", "properties": { "placeNameId": 40347121, "placeNameVersionId": 1, "spelling": "Kirkkoväartin Aapan Hautakangas", "language": "fin", "languageOfficiality": 1, "languageDominance": 1, "placeNameSource": 1, "placeNameStatus": 5, "placeNameCreationTime": "2008-12-
```



OGC **Open Geospatial: OGC**  
@opengeospatial

Following



Developers! Come join us for the most important [#hackathon](#) in OGC history: the OGC API Hackathon at [@Geovation](#) in London on June 20-21. Test draft [#OpenAPI](#) based specifications for features, coverages, map tiles, and processes using a common [#API](#) template [go.myogc.org/2VgJHQI](https://go.myogc.org/2VgJHQI)



# THX



**MML**  
PAIKKA-  
TIETO-  
KESKUS FGI