



Viglet Turing ES

Developer Guide

Viglet Team

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Preface

Viglet Turing ES (<https://viglet.com/turing>) is an open source solution (<https://github.com/openturing>), which has Semantic Navigation and Chatbot as its main features. You can choose from several NLPs to enrich the data. All content is indexed in Solr as search engine.

Chapter 1. More Documentation

Technical documentation on Turing ES is available at <https://docs.viglet.com/turing>.

Chapter 2. Open Source Development

You can collaborate with Turing, participating in its development. Below are the steps to create your Turing environment.

2.1. Development Structure

2.1.1. Frameworks

Turing ES was developed using Spring Boot (<https://spring.io/projects/spring-boot>) for its backend.

The UI is currently using AngularJS (<https://angularjs.org>), but a new UI is being developed using Angular 12 (<https://angular.io>) with Primer CSS (<https://primer.style/css>).

In addition to Java, you also need to have Git (<https://git-scm.com/downloads>) and NodeJS (<https://nodejs.org/en/download/>) installed.

2.1.2. Databases

By default it uses the H2 database (<https://www.h2database.com>), but can be changed to other databases using Spring Boot properties. It comes bundled with OpenNLP (<https://opennlp.apache.org/>) in the same JVM.

2.1.3. Language and Deploy

It uses Java 17 (<https://adoptopenjdk.net/archive.html?variant=openjdk17&jvmVariant=hotspot>) and its deployment is done with Gradle 8 (<https://gradle.org/>) and works on Linux and Windows.

2.1.4. Docker

To use Semantic Navigation and Chatbot you must have a Solr (<https://solr.apache.org>) service available. If you prefer to work with all the services Turing depends on, you can use docker-compose (<https://docs.docker.com/compose/install>) to start these services, we use the Docker Desktop (<https://www.docker.com/products/docker-desktop>) installed on computer.

2.1.5. IDE

You can use Spring Tools 4 for Eclipse (<https://spring.io/tools>) or Eclipse (<https://www.eclipse.org/downloads/>) or Visual Studio Code (<https://code.visualstudio.com/>) or IntelliJ (<https://www.jetbrains.com/pt-br/idea/>) as IDEs.

2.2. Download

Use the git command line to download the repository to your computer.

2.2.1. Turing Server and Connectors

```
git clone https://github.com/openturing/turing.git
```

2.3. Run during Development

To run Turing ES, execute the following lines:

2.3.1. Turing Server

Development

With UI

```
cd turing
./gradlew turing-app:bootrun
```

Without update UI

```
cd turing
./gradlew turing-app:bootrun -Pno-ui
```

New Turing UI

Start the Turing Server using dev-ui profile


```
cd turing
./gradlew turing-app:bootrun --args='--spring.profiles.active=dev-ui' -Pno-ui
```

And start one of the components of turing-ui

```
cd turing/turing-ui

## Console
ng serve console

## Search
ng serve sn

## Chatbot
ng serve converse

## Chatbot
ng serve welcome
```

IMPORTANT

You need start the Turing Server and Solr first.

Build

```
cd turing
./gradlew turing-app:build
```

2.3.2. Java SDK

Development

```
cd turing-java-sdk
./gradlew shadowJar
java -cp build/libs/turing-java-sdk-all.jar
com.viglet.turing.client.sn.sample.TurSNClientSample
```

IMPORTANT

You need start the Turing Server and Solr first.

2.3.3. Build

```
cd turing-java-sdk
./gradlew build
```

Or use the jitpack into your project at <https://jitpack.io/#openturing/turing-java-sdk>

2.3.4. WEM Listener

```
cd turing
./gradlew turing-wem:shadowJar
```

For development, copy the turing-wem/build/libs/turing-wem-all.jar into WEM_DIR/libs and test the listener using turing-wem command line.

IMPORTANT

You need start the Turing Server and Solr first and restart WEM

2.3.5. Database Connector

```
cd turing
./gradlew turing-jdbc:shadowJar
```

IMPORTANT

You need start the Turing Server and Solr first and restart WEM

2.3.6. Filesystem Connector

```
cd turing
./gradlew turing-filesystem:shadowJar
```

IMPORTANT

You need start the Turing Server and Solr first and restart WEM

2.3.7. Nutch

Nutch 1.12

```
cd turing/  
./gradlew turing-nuch:nutch1_12:packageDistribution
```

For development, copy the files of `turing-nutch/nutch1_12/build/extracted_dist` to `APACHE_NUTCH1_12/plugins/indexer-viglet-turing`

Nutch 1.18

```
cd turing/  
./gradlew turing-nuch:nutch1_18:packageDistribution
```

For development, copy the files of `turing-nutch/nutch1_18/build/extracted_dist` to `APACHE_NUTCH1_18/plugins/indexer-viglet-turing`

IMPORTANT

You need start the Turing Server and Solr first.

2.4. URLs

2.4.1. Turing Server

- Administration Console: <http://localhost:2700>. (admin/admin)
- Semantic Navigation Sample: <http://localhost:2700/sn/Sample>.

2.4.2. New Turing UI

- Welcome <http://localhost:4200/welcome>
- Console <http://localhost:4200/console>
- Search Page http://localhost:4200/sn/template?_setsite=Sample&_setlocale=en_US
- Converse <http://localhost:4200/converse>

2.4.3. Docker Compose

- Administration Console: <http://localhost>. (admin/admin)

- Semantic Navigation Sample: <http://localhost/sn/Sample>.
- Solr: <http://localhost:8983>

2.4.4. Code Quality

You can check the quality of Turing Code at:

- SonarCloud at <https://sonarcloud.io/organizations/viglet-turing/projects>
- Github Actions at <https://github.com/openturing/turing/actions>
- Github Security at <https://github.com/openturing/turing/security/code-scanning>
- Codecov at <https://app.codecov.io/gh/openturing/turing>

Chapter 3. REST API

3.1. API Overview

Turing ES offers a variety of robust, convenient, and simple RESTful Web service APIs to integrate data from Turing to any external system. Through Turing's API, your developers can create Web applications to interact directly with data that resides in Turing. Among the available features include RESTful APIs using JSON format, authentication via API Key invoking the existing user-level governance and security model built into Turing as well as a developer to manage access to API documentation and API keys. We have APIs to deliver search and cognitive features.

3.2. OpenAPI 3.0

The OpenAPI Specification (OAS) defines a standard, language-agnostic interface to HTTP APIs which allows both humans and computers to discover and understand the capabilities of the service without access to source code, documentation, or through network traffic inspection. When properly defined, a consumer can understand and interact with the remote service with a minimal amount of implementation logic.

An OpenAPI definition can then be used by documentation generation tools to display the API, code generation tools to generate servers and clients in various programming languages, testing tools, and many other use cases.

Turing OpenAPI 3.0 is available at <http://localhost:2700/v3/api-docs>.

3.3. Swagger

Swagger allows you to describe the structure of your APIs so that machines can read them. The ability of APIs to describe their own structure is the root of all awesomeness in Swagger. Swagger does this by asking your API to return a YAML or JSON that contains a detailed description of your entire API. This file is essentially a resource listing of your API which adheres to OpenAPI Specification.

You can access the Turing API documentation and test it directly using Swagger at <http://localhost:2700/swagger-ui.html>.

3.4. Generate an API Key

3.4.1. Step 1

Sign in Turing Administration Console (<http://localhost:2700>).

[Sign in] | *img/screenshots/turing-login.png*

3.4.2. Step 2

Access API Token Section.

[API Token Section] | *img/turing/0.3.8/api-token-menu.png*

3.4.3. Step 3

Create a new API Token with Title and Description.

[New API Token] | *img/turing/0.3.8/api-token-new.png*

3.4.4. Step 4

Will be create a new random API Token.

[API Token was generated] | *img/turing/0.3.8/api-token-hash.png*

3.5. Semantic Navigation

3.5.1. Search

Search on the semantic navigation site.

API Endpoint

```
GET http://localhost:2700/api/sn/{{siteName}}/search
```

Path Parameters

Attribute	Required / Optional	Description	Example
siteName	Required	Site Name	Sample

Query String

Attribute	Required / Optional	Description	Example
q	Required	Search Query.	q=foo
p	Required	Page Number, first page is 1.	p=1
sort	Required	Sort values: relevance , newest and oldest . Or FIELD: SORT	sort=relevance or sort=title:asc
fq[]	Optional	Query Field. Filter by field, using the following pattern: FIELD: VALUE.	fq[]=title:bar
rows	Optional	Number of rows that query will return.	rows=10

Attribute	Required / Optional	Description	Example
_setlocale	Required	Locale of Semantic Navigation Site	_setlocale=en_US
nfpr	Optional	Disable Auto Correction	nfpr=1

Example - Request

```
curl -X 'GET' \
'http://localhost:2700/api/sn/Sample/search?q=foobar&p=1&fq[ ]=state:WA&sort=relevance&rows=10&nfpr=0&_setlocale=en_US' \
-H 'Content-Type: application/json'
```

Example - Response

```
{
  "pagination": [
    {
      "type": "CURRENT",
      "text": "1",
      "href":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance",
      "page": 1
    },
    {
      "type": "PAGE",
      "text": "2",
      "href":
"/api/sn/Sample/search?q=foobar&p=2&_setlocale=en_US&sort=relevance",
      "page": 2
    },
    {
      "type": "PAGE",
      "text": "3",
      "href":
"/api/sn/Sample/search?q=foobar&p=3&_setlocale=en_US&sort=relevance",
      "page": 3
    }
  ]
}
```



```

        "type": "PAGE",
        "text": "4",
        "href":
"/api/sn/Sample/search?q=foobar&p=4&setlocale=en_US&sort=relevance",
        "page": 4
    },
    {
        "type": "NEXT",
        "text": "Next",
        "href":
"/api/sn/Sample/search?q=foobar&p=2&setlocale=en_US&sort=relevance",
        "page": 2
    },
    {
        "type": "LAST",
        "text": "Last",
        "href":
"/api/sn/Sample/search?q=foobar&p=480&setlocale=en_US&sort=relevance",
        "page": 480
    }
],
"queryContext": {
    "count": 4795,
    "index": "Sample",
    "limit": 10,
    "offset": 0,
    "page": 1,
    "pageCount": 480,
    "pageEnd": 10,
    "pageStart": 1,
    "responseTime": 51,
    "query": {
        "queryString": "foobar",
        "sort": "relevance",
        "locale": "en_US"
    },
    "defaultFields": {
        "title": "title",
        "date": "publicationDate",
        "description": "texts",
        "text": "text",
        "image": "image",
        "url": "url"
    }
},
"results": {

```

```

"document": [
  {
    "source":
"https://www.example.com/0df43c64ebee710VgnVCM100000d701210aRCRD",
    "elevate": false,
    "metadata": [
      {
        "href":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=site%3ASam
ple Site",
        "text": "Sample Site"
      },
      {
        "href":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=categories
%3AInova%C3%A7%C3%A3o",
        "text": "Inovation"
      },
      {
        "href":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=type%3ANew
s",
        "text": "News"
      }
    ],
    "fields": {
      "author": "john",
      "description": "Loren",
      "title": "Loren",
      "type": "News",
      "url":
"https://www.example.com/0df43c64ebee710VgnVCM100000d701210aRCRD",
      "state": [
        "MA"
      ],
      "modificationDate": "2021-09-16T13:28:54.000+00:00",
      "site": "Sample Site",
      "texts": [
        "..."
      ],
      "provider": "Sample Site",
      "_version_": 1765073243578826752,
      "id": "0df43c64ebee710VgnVCM100000d701210aRCRD",
      "categories": [
        "Inovation"
      ],

```

```

        "source_apps": [
            "WEM"
        ],
        "publicationDate": "2021-09-16T13:28:59.000+00:00"
    }
}
],
},
"groups": [],
"widget": {
    "facet": [
        {
            "facets": [
                {
                    "count": 2343,
                    "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=type%3AArticle",
                    "label": "Article"
                },
                {
                    "count": 485,
                    "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=type%3ANews",
                    "label": "News"
                },
                {
                    "count": 267,
                    "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=type%3AVideo",
                    "label": "Video"
                },
                {
                    "count": 171,
                    "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=type%3AFaq",
                    "label": "Faq"
                }
            ],
            "label": {
                "lang": "en",
                "text": "Types"
            }
        }
    ],
    "label": {
        "lang": "en",
        "text": "Types"
    }
},

```

```

        "name": "type",
        "description": "Content Type Field",
        "type": "STRING",
        "multiValued": false
    },
    {
        "facets": [
            {
                "count": 4764,
                "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=site%3ASam
ple Site",
                "label": "Sample Site"
            }
        ],
        "label": {
            "lang": "en",
            "text": "Sites"
        },
        "name": "site",
        "description": "Site Name",
        "type": "STRING",
        "multiValued": false
    },
    {
        "facets": [
            {
                "count": 2603,
                "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=categories
%3AInova%C3%A7%C3%A3o",
                "label": "Inovation"
            },
            {
                "count": 300,
                "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=categories
%3AINOVA%C3%87%C3%83O",
                "label": "Inovation"
            }
        ],
        "label": {
            "lang": "en",
            "text": "Categories"
        },
        "name": "categories",

```

```

        "description": "Categories",
        "type": "STRING",
        "multiValued": true
    },
    {
        "facets": [
            {
                "count": 2145,
                "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=state%3ANA
",
                "label": "NA"
            },
            {
                "count": 325,
                "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=state%3ASC
",
                "label": "SC"
            },
            {
                "count": 297,
                "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=state%3APE
",
                "label": "PE"
            }
        ],
        "label": {
            "lang": "en",
            "text": "States"
        },
        "name": "state",
        "description": "State",
        "type": "STRING",
        "multiValued": true
    }
],
"facetToRemove": null,
"similar": null,
"spellCheck": {
    "correctedText": false,
    "usingCorrectedText": true,
    "original": {
        "text": "foobar",
        "link":

```

```

"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&nfpr=1"
    },
    "corrected": {
      "text": "",
      "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance"
    }
  },
  "locales": [
    {
      "locale": "en_US",
      "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance"
    }
  ],
  "spotlights": []
}

```

3.5.2. Search with Targeting Rules

Search on the semantic navigation site adding segmentation, restricting content based on defined segments.

API Endpoint

```
POST http://localhost:2700/api/sn/{{siteName}}/search
```

Headers

API headers include the mandatory information you send along with the request URL and body. This information helps provide insights into request context and authorization credentials that, in turn, allows access to protected resources.

Key	Value	Description
Key	api-key	API key helps authenticate the application with the server. For generating API key, refer to Generate an API Key
Content-Type	application/json	Content-Type is a representation header that determines the type of data (media/resource) present in the request body
Accept	application/json	Determines the acceptable response type from the server

Path Parameters

Attribute	Required / Optional	Description	Example
siteName	Required	Site Name	Sample

Query String

Attribute	Required / Optional	Description	Example
q	Required	Search Query.	q=foo
p	Required	Page Number, first page is 1.	p=1
sort	Required	Sort values: relevance , newest and oldest . Or FIELD: SORT	sort=relevance or sort=title:asc

Attribute	Required / Optional	Description	Example
fq[]	Optional	Query Field. Filter by field, using the following pattern: FIELD: VALUE.	fq[]=title:bar
rows	Optional	Number of rows that query will return.	rows=10
_setlocale	Required	Locale of Semantic Navigation Site	_setlocale=en_US
nfpr	Optional	Disable Auto Correction	nfpr=1
group	Optional	Group by attribute	group=type

Request Parameters

Attribute	Type	Required / Optional	Description
userId	String	Optional	User Id
targetingRules	String[]	Optional	Targeting Rule. Restrict search based in: FIELD: VALUE.
populateMetrics	Boolean	Optional	If populate metrics

Example - Request

```
curl -X 'POST' \
'http://localhost:2700/api/sn/Sample/search?q=foobar&p=1&fq%5B%5D=state%3AWA&sort=relevance&rows=10&nfpr=0&_setlocale=en_US' \
-H 'Content-Type: application/json' \
-H 'Key: {{Enter your API KEY}}' \
-d '{
  "userId": "string",
```



```
"populateMetrics": true,  
"targetingRules": [  
  "department:HR",  
  "profile:Principal"  
]  
'}
```

Example - Response

```
{  
  "pagination": [  
    {  
      "type": "CURRENT",  
      "text": "1",  
      "href":  
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance",  
      "page": 1  
    },  
    {  
      "type": "PAGE",  
      "text": "2",  
      "href":  
"/api/sn/Sample/search?q=foobar&p=2&_setlocale=en_US&sort=relevance",  
      "page": 2  
    },  
    {  
      "type": "PAGE",  
      "text": "3",  
      "href":  
"/api/sn/Sample/search?q=foobar&p=3&_setlocale=en_US&sort=relevance",  
      "page": 3  
    },  
    {  
      "type": "PAGE",  
      "text": "4",  
      "href":  
"/api/sn/Sample/search?q=foobar&p=4&_setlocale=en_US&sort=relevance",  
      "page": 4  
    },  
    {  
      "type": "NEXT",  
      "text": "Next",  
      "href":  
"/api/sn/Sample/search?q=foobar&p=2&_setlocale=en_US&sort=relevance",  
      "page": 2  
    }  
  ]  
}
```

```

    },
    {
      "type": "LAST",
      "text": "Last",
      "href":
"/api/sn/Sample/search?q=foobar&p=480&_setlocale=en_US&sort=relevance",
      "page": 480
    }
  ],
  "queryContext": {
    "count": 4795,
    "index": "Sample",
    "limit": 10,
    "offset": 0,
    "page": 1,
    "pageCount": 480,
    "pageEnd": 10,
    "pageStart": 1,
    "responseTime": 51,
    "query": {
      "queryString": "foobar",
      "sort": "relevance",
      "locale": "en_US"
    }
  },
  "defaultFields": {
    "title": "title",
    "date": "publicationDate",
    "description": "texts",
    "text": "text",
    "image": "image",
    "url": "url"
  }
},
"results": {
  "document": [
    {
      "source":
"https://www.example.com/0df43c64ebee710VgnVCM100000d701210aRCRD",
      "elevate": false,
      "metadata": [
        {
          "href":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=site%3ASam
ple Site",
          "text": "Sample Site"
        }
      ]
    }
  ]
}

```

```

        {
            "href":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=categories
%3AInova%C3%A7%C3%A3o",
            "text": "Inovation"
        },
        {
            "href":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=type%3ANews",
            "text": "News"
        }
    ],
    "fields": {
        "author": "john",
        "description": "Loren",
        "title": "Loren",
        "type": "News",
        "url":
"https://www.example.com/0df43c64ebee710VgnVCM100000d701210aRCRD",
        "state": [
            "MA"
        ],
        "modificationDate": "2021-09-16T13:28:54.000+00:00",
        "site": "Sample Site",
        "texts": [
            "..."
        ],
        "provider": "Sample Site",
        "_version_": 1765073243578826752,
        "id": "0df43c64ebee710VgnVCM100000d701210aRCRD",
        "categories": [
            "Inovation"
        ],
        "source_apps": [
            "WEM"
        ],
        "publicationDate": "2021-09-16T13:28:59.000+00:00"
    }
}
]
},
"groups": [],
"widget": {
    "facet": [
        {

```

```

        "facets": [
            {
                "count": 2343,
                "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=type%3AArticle",
                "label": "Article"
            },
            {
                "count": 485,
                "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=type%3ANews",
                "label": "News"
            },
            {
                "count": 267,
                "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=type%3AVideo",
                "label": "Video"
            },
            {
                "count": 171,
                "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=type%3AFaq",
                "label": "Faq"
            }
        ],
        "label": {
            "lang": "en",
            "text": "Types"
        },
        "name": "type",
        "description": "Content Type Field",
        "type": "STRING",
        "multiValued": false
    },
    {
        "facets": [
            {
                "count": 4764,
                "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=site%3ASample Site",

```

```

        "label": "Sample Site"
      },
    ],
    "label": {
      "lang": "en",
      "text": "Sites"
    },
    "name": "site",
    "description": "Site Name",
    "type": "STRING",
    "multiValued": false
  },
  {
    "facets": [
      {
        "count": 2603,
        "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=categories%3AInova%C3%A7%C3%A3o",
        "label": "Inovation"
      },
      {
        "count": 300,
        "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=categories%3AINOVA%C3%87%C3%83o",
        "label": "Inovation"
      }
    ],
    "label": {
      "lang": "en",
      "text": "Categories"
    },
    "name": "categories",
    "description": "Categories",
    "type": "STRING",
    "multiValued": true
  },
  {
    "facets": [
      {
        "count": 2145,
        "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=state%3ANA",
        "label": "NA"
      }
    ]
  }
}

```

```

        },
        {
            "count": 325,
            "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=state%3ASC
",
            "label": "SC"
        },
        {
            "count": 297,
            "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=state%3APE
",
            "label": "PE"
        }
    ],
    "label": {
        "lang": "en",
        "text": "States"
    },
    "name": "state",
    "description": "State",
    "type": "STRING",
    "multiValued": true
}
],
"facetToRemove": null,
"similar": null,
"spellCheck": {
    "correctedText": false,
    "usingCorrectedText": true,
    "original": {
        "text": "foobar",
        "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&nfpr=1"
    },
    "corrected": {
        "text": "",
        "link":
"/api/sn/Sample/search?q=&p=1&_setlocale=en_US&sort=relevance"
    }
},
"locales": [
    {
        "locale": "en_US",
        "link":

```

```
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance"
    }
  ],
  "spotlights": []
}
```

3.5.3. Search With Group By

Search on the semantic navigation site by grouping the search into groups.

API Endpoint

```
GET|POST http://localhost:2700/api/sn/{{siteName}}/search
```

Headers

API headers include the mandatory information you send along with the request URL and body. This information helps provide insights into request context and authorization credentials that, in turn, allows access to protected resources.

Key	Value	Description
Key	api-key	API key helps authenticate the application with the server. For generating API key, refer to Generate an API Key
Content-Type	application/json	Content-Type is a representation header that determines the type of data (media/resource) present in the request body
Accept	application/json	Determines the acceptable response type from the server

Path Parameters

Attribute	Required / Optional	Description	Example
siteName	Required	Site Name	Sample

Query String

Attribute	Required / Optional	Description	Example
q	Required	Search Query.	q=foo
p	Required	Page Number, first page is 1.	p=1
sort	Required	Sort values: relevance , newest and oldest . Or FIELD: SORT	sort=relevance or sort=title:asc
fq[]	Optional	Query Field. Filter by field, using the following pattern: FIELD: VALUE.	fq[]=title:bar
rows	Optional	Number of rows that query will return.	rows=10
_setlocale	Required	Locale of Semantic Navigation Site	_setlocale=en_US
nfpr	Optional	Disable Auto Correction	nfpr=1
group	Optional	Group by attribute	group=type

Example - Request

```
curl -X 'GET' \
'http://localhost:2700/api/sn/Sample/search?q=foobar&p=1&group=type&sort=relevance&
```



```
rows=10&nfr=0&setlocale=en_US' \
-H 'Content-Type: application/json'
```

Example - Response

```
{
  "pagination": [
    {
      "type": "CURRENT",
      "text": "1",
      "href":
"/api/sn/Sample/search?q=foobar&p=1&setlocale=en_US&sort=relevance&group=type",
      "page": 1
    },
    {
      "type": "PAGE",
      "text": "2",
      "href":
"/api/sn/Sample/search?q=foobar&p=2&setlocale=en_US&sort=relevance&group=type",
      "page": 2
    },
    {
      "type": "PAGE",
      "text": "3",
      "href":
"/api/sn/Sample/search?q=foobar&p=3&setlocale=en_US&sort=relevance&group=type",
      "page": 3
    },
    {
      "type": "PAGE",
      "text": "4",
      "href":
"/api/sn/Sample/search?q=foobar&p=4&setlocale=en_US&sort=relevance&group=type",
      "page": 4
    },
    {
      "type": "NEXT",
      "text": "Next",
      "href":
"/api/sn/Sample/search?q=foobar&p=2&setlocale=en_US&sort=relevance&group=type",
      "page": 2
    },
    {
      "type": "LAST",
      "text": "Last",
```

```

    "href":
"/api/sn/Sample/search?q=foobar&p=480&_setlocale=en_US&sort=relevance&group=type",
    "page": 480
  }
],
"queryContext": {
  "count": 4795,
  "index": "Sample",
  "limit": 10,
  "offset": 0,
  "page": 1,
  "pageCount": 480,
  "pageEnd": 10,
  "pageStart": 1,
  "responseTime": 73,
  "query": {
    "queryString": "foobar",
    "sort": "relevance",
    "locale": "en_US"
  },
  "defaultFields": {
    "title": "title",
    "date": "publicationDate",
    "description": "texts",
    "text": "text",
    "image": "image",
    "url": "url"
  }
},
"results": { "document": [] },
"groups": [
  {
    "name": "News",
    "count": 485,
    "page": 1,
    "pageCount": 49,
    "pageEnd": 10,
    "pageStart": 1,
    "limit": 10,
    "results": {
      "document": [
        {
          "source": "https://www.example.com/ufs/ma/noticias/premio-nacional-de-
foobar-recebe-inscricoes-ate-2-de-
outubro,0df43c64ebee710VgnVCM100000d701210aRCRD",
          "elevate": false,

```

```

    "metadata": [
      {
        "href":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&group=type&fq[]
=state%3AMA",
        "text": "MA"
      },
      {
        "href":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&group=type&fq[]
=site%3ASample Site",
        "text": "Sample Site"
      },
      {
        "href":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&group=type&fq[]
=categories%3AInova%C3%A7%C3%A3o",
        "text": "Inovation"
      },
      {
        "href":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&group=type&fq[]
=type%3ANews",
        "text": "News"
      }
    ],
    "fields": {
      "author": "john",
      "description": "...",
      "title": "...",
      "type": "News",
      "url":
"https://www.example.com/0df43c64ebee710VgnVCM100000d701210aRCRD",
      "state": ["MA"],
      "modificationDate": "2021-09-16T13:28:54.000+00:00",
      "site": "Sample Site",
      "texts": [
        "..."
      ],
      "provider": "Sample Site",
      "_version_": 1765073243578826752,
      "id": "0df43c64ebee710VgnVCM100000d701210aRCRD",
      "categories": ["Inovation"],
      "source_apps": ["WEM"],
      "publicationDate": "2021-09-16T13:28:59.000+00:00"
    }
  }

```

```

    },
    {
      "source":
        "https://www.example.com/ufs/1e929c110e49c710VgnVCM100000d701210aRCRD",
      "elevate": false,
      "metadata": [
        {
          "href":
            "/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&group=type&fq[]
            =state%3AMA",
          "text": "MA"
        },
        {
          "href":
            "/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&group=type&fq[]
            =site%3ASample Site",
          "text": "Sample Site"
        },
        {
          "href":
            "/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&group=type&fq[]
            =categories%3AInova%C3%A7%C3%A3o",
          "text": "Inovation"
        },
        {
          "href":
            "/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&group=type&fq[]
            =type%3ANews",
          "text": "News"
        }
      ],
      "fields": {
        "author": "john",
        "description": "...",
        "title": "...",
        "type": "News",
        "url":
          "https://www.example.com/1e929c110e49c710VgnVCM100000d701210aRCRD",
        "state": ["MA"],
        "modificationDate": "2021-10-18T20:01:04.000+00:00",
        "site": "Sample Site",
        "texts": [
          "...
        ],
        "provider": "Sample Site",
        "_version_": 1765073243259011072,

```

```

        "id": "1e929c110e49c710VgnVCM100000d701210aRCRD",
        "categories": ["Inovation"],
        "source_apps": ["WEM"],
        "publicationDate": "2021-10-18T20:01:11.000+00:00"
      }
    }
  ],
  "pagination": [
    {
      "type": "CURRENT",
      "text": "1",
      "href":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=News",
      "page": 1
    },
    {
      "type": "PAGE",
      "text": "2",
      "href":
"/api/sn/Sample/search?q=foobar&p=2&_setlocale=en_US&sort=relevance&fq[]=News",
      "page": 2
    },
    {
      "type": "PAGE",
      "text": "3",
      "href":
"/api/sn/Sample/search?q=foobar&p=3&_setlocale=en_US&sort=relevance&fq[]=News",
      "page": 3
    },
    {
      "type": "PAGE",
      "text": "4",
      "href":
"/api/sn/Sample/search?q=foobar&p=4&_setlocale=en_US&sort=relevance&fq[]=News",
      "page": 4
    },
    {
      "type": "NEXT",
      "text": "Next",
      "href":
"/api/sn/Sample/search?q=foobar&p=2&_setlocale=en_US&sort=relevance&fq[]=News",
      "page": 2
    },
    {

```

```

        "type": "LAST",
        "text": "Last",
        "href":
"/api/sn/Sample/search?q=foobar&p=49&_setlocale=en_US&sort=relevance&fq[]=News",
        "page": 49
    }
]
},
{
    "name": "Article",
    "count": 2343,
    "page": 1,
    "pageCount": 235,
    "pageEnd": 10,
    "pageStart": 1,
    "limit": 10,
    "results": {
        "document": [
            {
                "source":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&group=type&fq[]
=state%3ANA",
                "elevate": false,
                "metadata": [
                    {
                        "href":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&group=type&fq[]
=site%3ASample Site",
                        "text": "Sample Site"
                    },
                    {
                        "href":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&group=type&fq[]
=type%3AArticle",
                        "text": "Article"
                    }
                ],
                "fields": {
                    "author": "john",
                    "htmls": [
                        "..."
```

```

    ],
    "description": "...",
    "title": "...",
    "type": "Article",
    "url":
"https://www.example.com/dc926de4cced1810VgnVCM100000d701210aRCRD",
    "state": ["NA"],
    "modificationDate": "2022-07-12T14:00:58.000+00:00",
    "site": "Sample Site",
    "texts": [
        "...",
    ],
    "provider": "Sample Site",
    "_version_": 1765071551980371968,
    "id": "dc926de4cced1810VgnVCM100000d701210aRCRD",
    "categories": ["Inovation"],
    "source_apps": ["WEM"],
    "publicationDate": "2022-07-12T14:03:16.000+00:00"
  }
}
],
},
"pagination": [
  {
    "type": "CURRENT",
    "text": "1",
    "href":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&fq[]=Article",
    "page": 1
  },
  {
    "type": "PAGE",
    "text": "2",
    "href":
"/api/sn/Sample/search?q=foobar&p=2&_setlocale=en_US&sort=relevance&fq[]=Article",
    "page": 2
  },
  {
    "type": "PAGE",
    "text": "3",
    "href":
"/api/sn/Sample/search?q=foobar&p=3&_setlocale=en_US&sort=relevance&fq[]=Article",
    "page": 3
  },
  {
    "type": "PAGE",

```

```

        "text": "4",
        "href":
"/api/sn/Sample/search?q=foobar&p=4&_setlocale=en_US&sort=relevance&fq[]=Article",
        "page": 4
    },
    {
        "type": "NEXT",
        "text": "Next",
        "href":
"/api/sn/Sample/search?q=foobar&p=2&_setlocale=en_US&sort=relevance&fq[]=Article",
        "page": 2
    },
    {
        "type": "LAST",
        "text": "Last",
        "href":
"/api/sn/Sample/search?q=foobar&p=235&_setlocale=en_US&sort=relevance&fq[]=Article"
    },
    {
        "page": 235
    }
]
},
"widget": {
    "facet": [
        {
            "facets": [
                {
                    "count": 2343,
                    "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&group=type&fq[]
=type%3AArticle",
                    "label": "Article"
                },
                {
                    "count": 485,
                    "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&group=type&fq[]
=type%3ANews",
                    "label": "News"
                }
            ],
            "label": { "lang": "en", "text": "Types" },
            "name": "type",
            "description": "Content Type Field",

```



```

    "type": "STRING",
    "multiValued": false
  },
  {
    "facets": [
      {
        "count": 4764,
        "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&group=type&fq[]
=site%3ASample Site",
        "label": "Sample Site"
      }
    ],
    "label": { "lang": "en", "text": "Sites" },
    "name": "site",
    "description": "Site Name",
    "type": "STRING",
    "multiValued": false
  },
  {
    "facets": [
      {
        "count": 2603,
        "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&group=type&fq[]
=categories%3AInova%C3%A7%C3%A3o",
        "label": "Inovation"
      },
      {
        "count": 1106,
        "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&group=type&fq[]
=categories%3AEmpreendedorismo",
        "label": "Empreendedorismo"
      }
    ],
    "label": { "lang": "en", "text": "Categories" },
    "name": "categories",
    "description": "Categories",
    "type": "STRING",
    "multiValued": true
  },
  {
    "facets": [
      {
        "count": 2145,

```

```

        "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&group=type&fq[]
=state%3ANA",
        "label": "NA"
    },
    {
        "count": 325,
        "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&group=type&fq[]
=state%3ASC",
        "label": "SC"
    },
    {
        "count": 297,
        "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&group=type&fq[]
=state%3APE",
        "label": "PE"
    }
],
"label": { "lang": "en", "text": "States" },
"name": "state",
"description": "State",
"type": "STRING",
"multiValued": true
}
],
"facetToRemove": null,
"similar": null,
"spellCheck": {
    "correctedText": false,
    "usingCorrectedText": true,
    "original": {
        "text": "foobar",
        "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&group=type&nfr
=1"
    },
    "corrected": {
        "text": "",
        "link":
"/api/sn/Sample/search?q=&p=1&_setlocale=en_US&sort=relevance&group=type"
    }
},
"locales": [
{

```

```
    "locale": "en_US",
    "link":
"/api/sn/Sample/search?q=foobar&p=1&_setlocale=en_US&sort=relevance&group=type"
  }
],
"spotlights": []
}
}
```

3.5.4. Search Between Dates

Search on the semantic navigation site between Dates

API Endpoint

```
GET|POST http://localhost:2700/api/sn/{{siteName}}/search
```

Headers

API headers include the mandatory information you send along with the request URL and body. This information helps provide insights into request context and authorization credentials that, in turn, allows access to protected resources.

Key	Value	Description
Key	api-key	API key helps authenticate the application with the server. For generating API key, refer to Generate an API Key
Content-Type	application/json	Content-Type is a representation header that determines the type of data (media/resource) present in the request body

Key	Value	Description
Accept	application/json	Determines the acceptable response type from the server

Path Parameters

Attribute	Required / Optional	Description	Example
siteName	Required	Site Name	Sample

Query String

Attribute	Required / Optional	Description	Example
q	Required	Search Query.	q=foo
p	Required	Page Number, first page is 1.	p=1
sort	Required	Sort values: relevance , newest and oldest . Or FIELD: SORT	sort=relevance or sort=title:asc
fq[]	Optional	Query Field. Filter by field, using the following pattern: FIELD: VALUE.	fq[]=title:bar
rows	Optional	Number of rows that query will return.	rows=10
_setlocale	Required	Locale of Semantic Navigation Site	_setlocale=en_US
nfpr	Optional	Disable Auto Correction	nfpr=1
group	Optional	Group by attribute	group=type

You will use `fq[]` to define the dates using the expression with the following date format:
`yyyy-MM-ddTHH:mm:ssZ`

Between Dates

```
fq[]=attribute:[InitialDate TO EndDate].
```

Example - Request

```
curl -X 'GET' \
'http://localhost:2700/api/sn/Sample/search?q=foobar&_setlocale=en_US&fq[]=modificationDate:[2023-07-23T00:00:00Z+TO+2023-11-30T00:00:00Z]' \
-H 'Content-Type: application/json'
```

From a date

```
fq[]=attribute:[InitialDate TO *].
```

Example - Request

```
curl -X 'GET' \
'http://localhost:2700/api/sn/Sample/search?q=foobar&_setlocale=en_US&fq[]=modificationDate:[2023-07-23T00:00:00Z+TO+*]' \
-H 'Content-Type: application/json'
```

Until a date

```
fq[]=attribute:[* TO EndDate].
```

Example - Request

```
curl -X 'GET' \
'http://localhost:2700/api/sn/Sample/search?q=foobar&_setlocale=en_US&fq[]=modifica
```

```
tionDate:[*+T0+2023-11-30T00:00:00Z]' \
-H 'Content-Type: application/json'
```

3.5.5. Search Latest

Returns the last terms searched by the user in the search.

API Endpoint

```
POST http://localhost:2700/api/sn/{{siteName}}/search/latest
```

Headers

API headers include the mandatory information you send along with the request URL and body. This information helps provide insights into request context and authorization credentials that, in turn, allows access to protected resources.

Key	Value	Description
Key	api-key	API key helps authenticate the application with the server. For generating API key, refer to Generate an API Key
Content-Type	application/json	Content-Type is a representation header that determines the type of data (media/resource) present in the request body
Accept	application/json	Determines the acceptable response type from the server

Path Parameters

Attribute	Type	Required / Optional	Description	Example
sitename	String	Required	Site Name.	Sample

Query String

Attribute	Type	Required / Optional	Description	Default	Example
q	String	Required	Search Query.	-	q=foo
rows	Integer	Optional	Number of rows that query will return.	5	rows=10
_setlocale	Boolean	Required	Locale of Semantic Navigation Site	-	_setlocale=en_US

Request Parameters

Attribute	Type	Required / Optional	Description	Example
userId	String	Required	User Id	userId=john

Example - Request

```
curl -X POST \  
  'http://localhost:2700/api/sn/Sample/search/latest?rows=5&_setlocale=en_US' \  
  -H 'Content-Type: application/json' \  
  -H 'Key: {{Enter your API KEY}}' \  
  -d '{  
    "userId": "john"  
  }'
```

Example - Response

```
[  
  "foo",  
  "bar"  
]
```

3.5.6. Search Locales

List all locales on the semantic navigation site.

API Endpoint

```
GET http://localhost:2700/api/sn/{{siteName}}/search/locales
```

Path Parameters

Attribute	Type	Required / Optional	Description	Example
sitename	String	Required	Site Name.	Sample

Example - Request

```
curl -X 'GET' \  
  'http://localhost:2700/api/sn/Sample/search/locales' \  
  -H 'Content-Type: application/json'
```

Example - Response

```
[  
  {  
    "locale": "en_US",  
    "link": "/api/sn/Sample/search?_setlocale=en_US"  
  },  
  {  
    "locale": "pt_BR",  
    "link": "/api/sn/Sample/search?_setlocale=pt_BR"  
  }  
]
```



```
}  
]
```

3.5.7. Auto Complete

Returns a term array that starts with the query value.

API Endpoint

```
GET http://localhost:2700/api/sn/{{siteName}}/ac
```

Path Parameters

Attribute	Required / Optional	Description	Example
siteName	Required	Site Name	Sample

Query String

Attribute	Type	Required / Optional	Description	Example
q	String	Required	Search Query.	q=foo
rows	Integer	Optional	Number of rows that query will return.	rows=10
_setlocale	Boolean	Required	Locale of Semantic Navigation Site	_setlocale=en_US

Example - Request

```
curl -X 'GET' \  
  'http://localhost:2700/api/sn/Sample/ac?q=dis&rows=10&_setlocale=en_US' \  
  -H 'Content-Type: application/json'
```

Example - Response

```
[  
  "disc",  
  "discovery"  
  "disco"  
  "disney"  
]
```

3.5.8. Spell Check

Corrects the text based on the semantic navigation site search database in a given language.

API Endpoint

```
GET http://localhost:2700/api/sn/{{siteName}}/{{locale}}/spell-check
```

Path Parameters

Attribute	Type	Required / Optional	Description	Example
sitename	String	Required	Site Name.	Sample
locale	String	Required	Locale of Semantic Navigation Site	en_US

Query String

Attribute	Type	Required / Optional	Description	Example
q	String	Required	Search Query.	q=foo

Attribute	Type	Required / Optional	Description	Example
rows	Integer	Optional	Number of rows that query will return.	rows=10
_setlocale	Boolean	Required	Locale of Semantic Navigation Site	_setlocale=en_US

Example - Request

```
curl -X 'GET' \
  'http://localhost:2700/api/sn/Sample/en_US/spell-check?q=fuu' \
  -H 'Content-Type: application/json'
```

Example - Response

```
{
  "correctedText": true,
  "usingCorrectedText": false,
  "original": {
    "text": "fuu",
    "link": "/api/sn/Sample/en_US/spell-check?q=fuu&nfpr=1"
  },
  "corrected": {
    "text": "foo",
    "link": "/api/sn/Sample/en_US/spell-check?q=foo"
  }
}
```

3.6. Cognitive

3.6.1. Spell Check

Corrects text based on the given language.

API Endpoint

```
GET http://localhost:2700/api/cognitive/spell-checker/{{locale}}
```

Headers

API headers include the mandatory information you send along with the request URL and body. This information helps provide insights into request context and authorization credentials that, in turn, allows access to protected resources.

Key	Value	Description
Key	api-key	API key helps authenticate the application with the server. For generating API key, refer to Generate an API Key
Content-Type	application/json	Content-Type is a representation header that determines the type of data (media/resource) present in the request body
Accept	application/json	Determines the acceptable response type from the server

Path Parameters

Attribute	Type	Required / Optional	Description	Example
locale	String	Required	Locale of Semantic Navigation Site	en_US

Query String

Attribute	Type	Required / Optional	Description	Example
text	String	Required	Text to validated	text=fuu ber

Example - Request

```
curl -X GET \
  "http://localhost:2700/api/cognitive/spell-checker/en_US?text=urange" \
  -H "Accept: application/json" \
  -H "Key: {{Enter your API KEY}}"
```

Example - Response

```
[
  "range",
  "orange",
  "grange",
  "Grange",
  "Orange",
  "u range"
]
```