EUROPEAN
LANGUAGE
GRID

# How to integrate services or data sets into the ELG platform

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http://www.european-language-grid.eu

# ELG platform

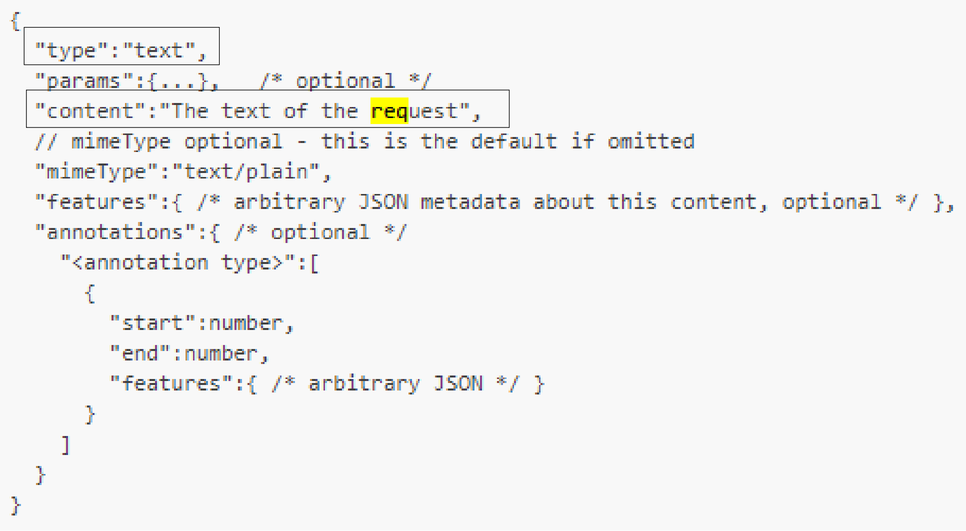
- It is a web-based platform and runs at: https://live.european-language-grid.eu
  - A catalogue for resources: LT services, data sets, lexical/conceptual resources, language descriptions
  - Each resource is documented with the required metadata
  - “Published” resources are visible by anyone; i.e. log-in, is not required
- What is required to be a resource provider in ELG
  - Register to the platform
  - ELG admins should assign you the “provider” role (email to contact@european-language-grid.eu)
  - Upload -> Review process …

# Provide a functional LT service

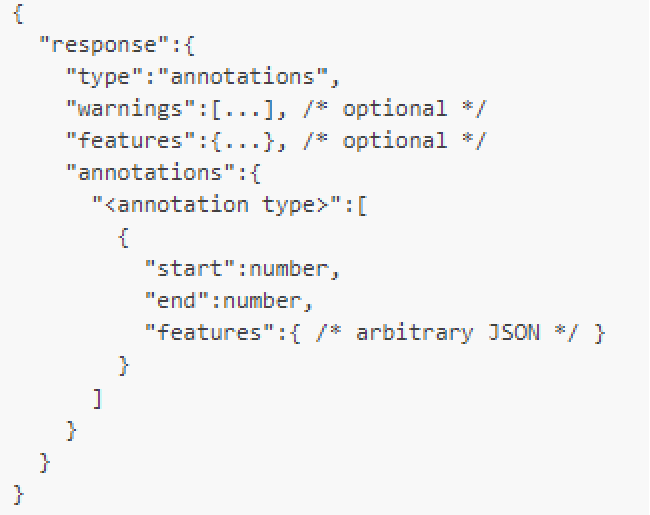
- Currently, ELG supports the integration of tools/services that fall into one of the following broad categories:
  - Information Extraction (IE)
  - Text Classification (TC)
  - Machine Translation (MT)
  - Automatic Speech Recognition (ASR)
  - Text to Speech Generation (TTS)
- Documentation: https://european-language-grid.readthedocs.io/en/release1.0.0/all/RegisterFunc.html

# Provide a functional LT service: Technical Requirements

- **Expose an ELG compatible endpoint:**
  - You MUST create an application that exposes an HTTP endpoint for the LT tool(s).
  - The application MUST consume requests that follow the ELG JSON format, call the underlying LT tool and produce responses again in the ELG JSON format (ELG LT Internal API)
  - E.g. for services that take as input  plain text and return annotations (IE).



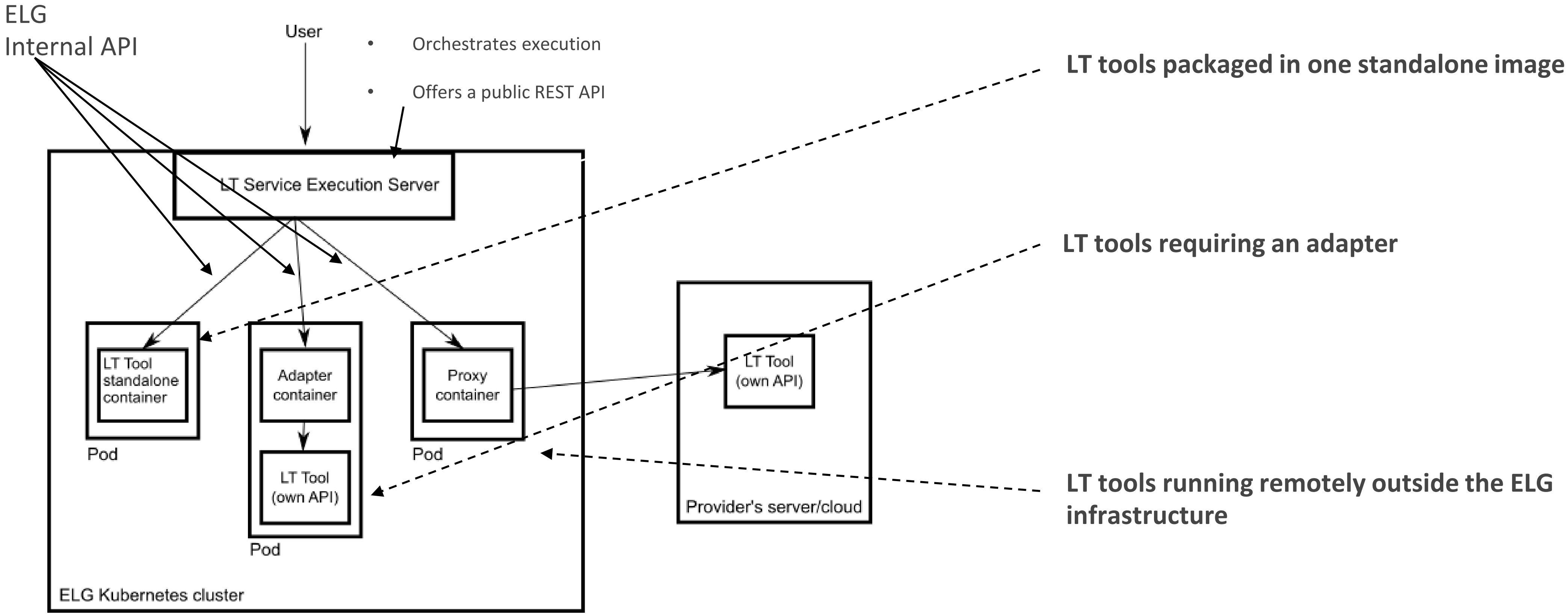
```
{
  "type":"text",
  "params":{...},   /* optional */
  "content":"The text of the request",
  // mimeType optional - this is the default if omitted
  "mimeType":"text/plain",
  "features":{ /* arbitrary JSON metadata about this content, optional */ },
  "annotations":{ /* optional */
    "<annotation type>":[
      {
        "start":number,
        "end":number,
        "features":{ /* arbitrary JSON */ }
      }
    ]
  }
}
```



```
{
  "response":{
    "type":"annotations",
    "warnings":[...], /* optional */
    "features":{...}, /* optional */
    "annotations":{
      "<annotation type>":[
        {
          "start":number,
          "end":number,
          "features":{ /* arbitrary JSON */ }
        }
      ]
    }
  }
}
```

# Provide a functional LT service: Technical Requirements

- **Dockerization**: You MUST Dockerize the application and upload the respective image(s) in a Docker Registry, e.g. GitLab. Three integration options are available.



ELG
Internal API

- Orchestrates execution
- Offers a public REST API

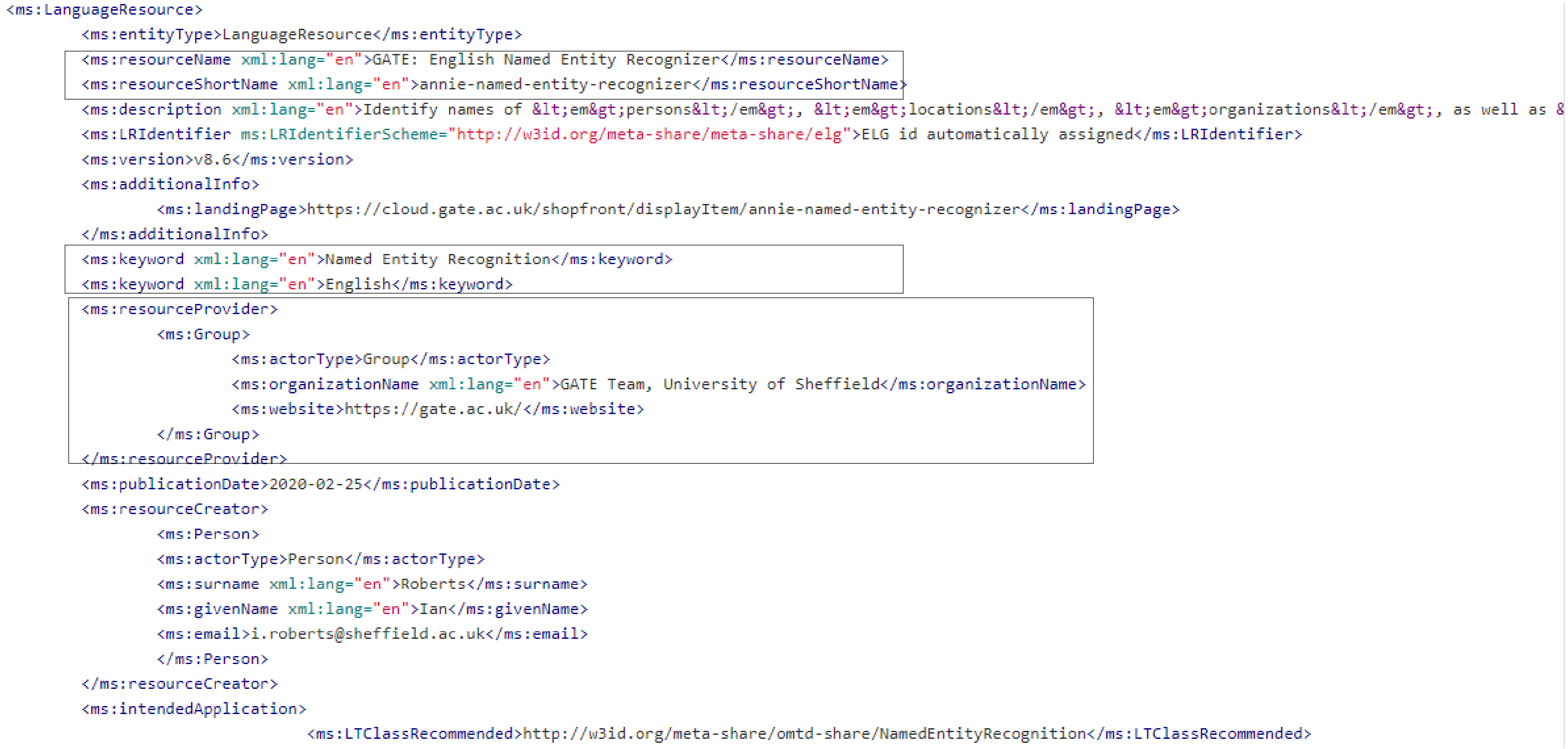
LT tools packaged in one standalone image

LT tools requiring an adapter

LT tools running remotely outside the ELG infrastructure

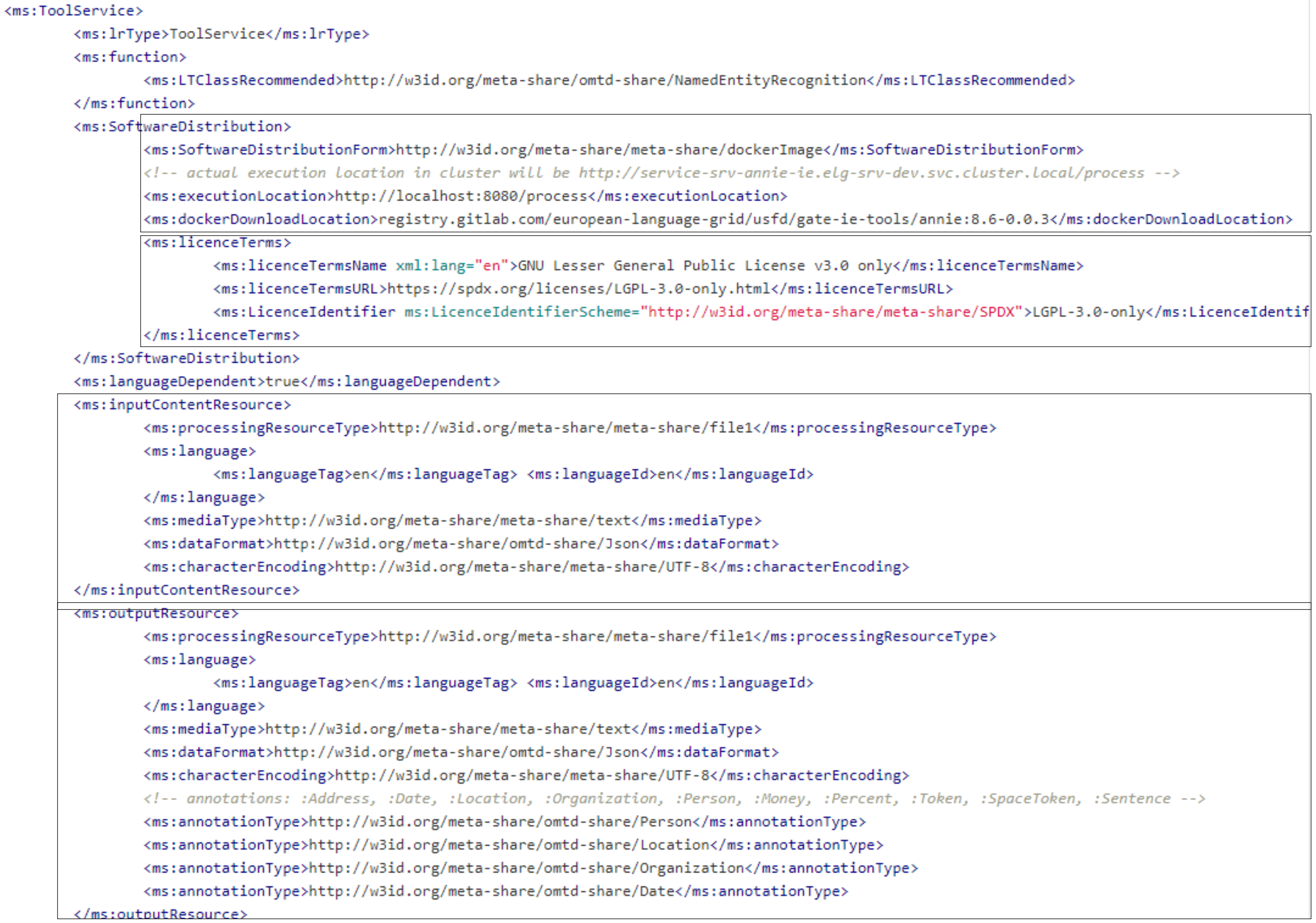
# Describe the LT service according to the ELG metadata schema

- Full metadata record example in XML: https://gitlab.com/european-language-grid/platform/metadatarecords/-/blob/master/R1a/USFD/hosted/annie-named-entity-recognizer.xml



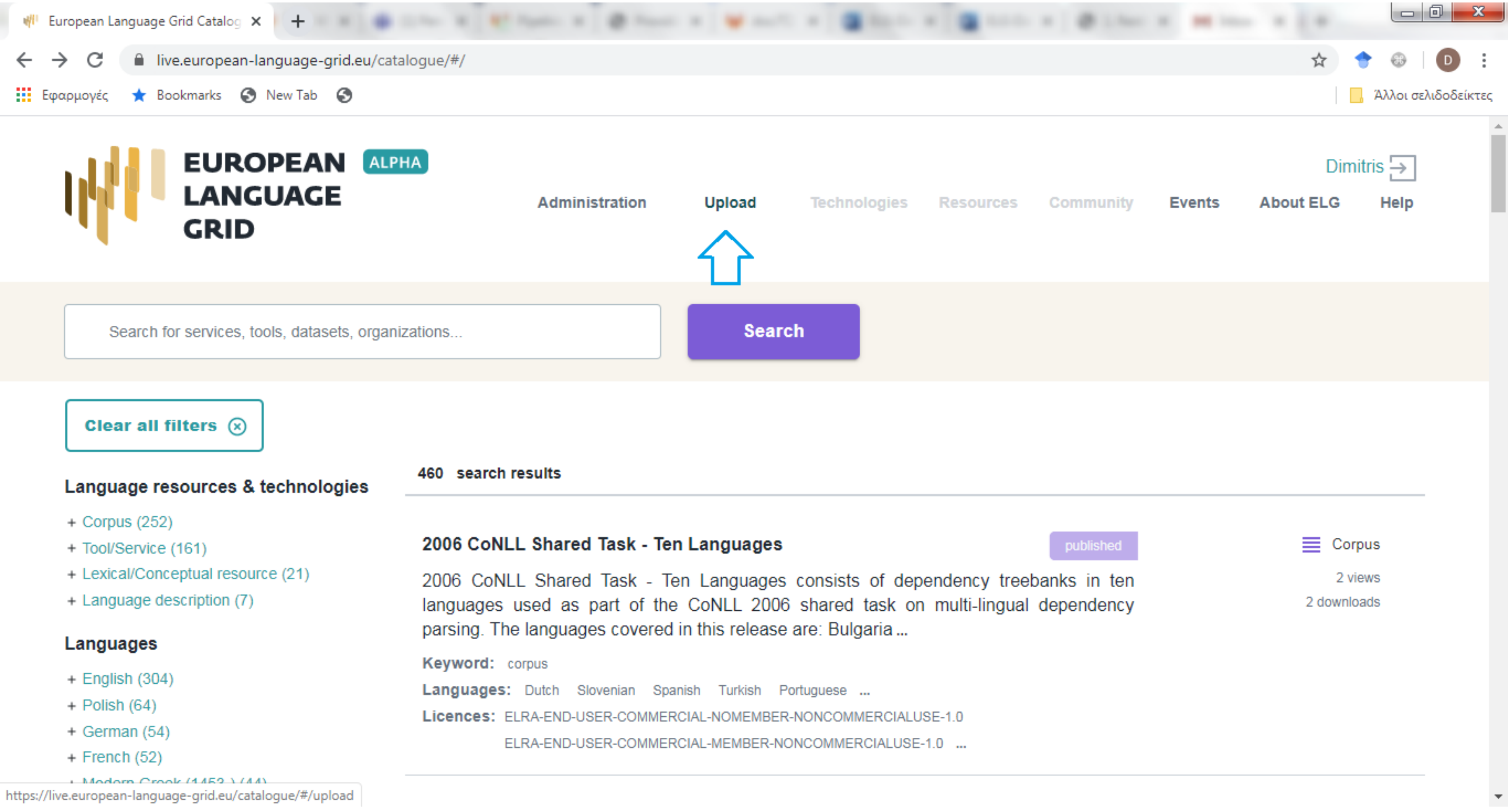
```
<ms:LanguageResource>
        <ms:entityType>LanguageResource</ms:entityType>
        <ms:resourceName xml:lang="en">GATE: English Named Entity Recognizer</ms:resourceName>
        <ms:resourceShortName xml:lang="en">annie-named-entity-recognizer</ms:resourceShortName>
        <ms:description xml:lang="en">Identify names of &lt;em&gt;persons&lt;/em&gt;, &lt;em&gt;locations&lt;/em&gt;, &lt;em&gt;organizations&lt;/em&gt;, as well as &
        <ms:LRIdentifier ms:LRIdentifierScheme="http://w3id.org/meta-share/meta-share/elg">ELG id automatically assigned</ms:LRIdentifier>
        <ms:version>v8.6</ms:version>
        <ms:additionalInfo>
                <ms:landingPage>https://cloud.gate.ac.uk/shopfront/displayItem/annie-named-entity-recognizer</ms:landingPage>
        </ms:additionalInfo>
        <ms:keyword xml:lang="en">Named Entity Recognition</ms:keyword>
        <ms:keyword xml:lang="en">English</ms:keyword>
        <ms:resourceProvider>
                <ms:Group>
                        <ms:actorType>Group</ms:actorType>
                        <ms:organizationName xml:lang="en">GATE Team, University of Sheffield</ms:organizationName>
                        <ms:website>https://gate.ac.uk/</ms:website>
                </ms:Group>
        </ms:resourceProvider>
        <ms:publicationDate>2020-02-25</ms:publicationDate>
        <ms:resourceCreator>
                <ms:Person>
                <ms:actorType>Person</ms:actorType>
                <ms:surname xml:lang="en">Roberts</ms:surname>
                <ms:givenName xml:lang="en">Ian</ms:givenName>
                <ms:email>i.roberts@sheffield.ac.uk</ms:email>
                </ms:Person>
        </ms:resourceCreator>
        <ms:intendedApplication>
                                <ms:LTClassRecommended>http://w3id.org/meta-share/omtd-share/NamedEntityRecognition</ms:LTClassRecommended>
```

# Describe the LT service according to the ELG metadata schema



```
<ms:ToolService>
        <ms:lrType>ToolService</ms:lrType>
        <ms:function>
                <ms:LTClassRecommended>http://w3id.org/meta-share/omtd-share/NamedEntityRecognition</ms:LTClassRecommended>
        </ms:function>
        <ms:SoftwareDistribution>
                <ms:SoftwareDistributionForm>http://w3id.org/meta-share/meta-share/dockerImage</ms:SoftwareDistributionForm>
                <!-- actual execution location in cluster will be http://service-srv-annie-ie.elg-srv-dev.svc.cluster.local/process -->
                <ms:executionLocation>http://localhost:8080/process</ms:executionLocation>
                <ms:dockerDownloadLocation>registry.gitlab.com/european-language-grid/usfd/gate-ie-tools/annie:8.6-0.0.3</ms:dockerDownloadLocation>
                <ms:licenceTerms>
                        <ms:licenceTermsName xml:lang="en">GNU Lesser General Public License v3.0 only</ms:licenceTermsName>
                        <ms:licenceTermsURL>https://spdx.org/licenses/LGPL-3.0-only.html</ms:licenceTermsURL>
                        <ms:LicenceIdentifier ms:LicenceIdentifierScheme="http://w3id.org/meta-share/meta-share/SPDX">LGPL-3.0-only</ms:LicenceIdentif
                </ms:licenceTerms>
        </ms:SoftwareDistribution>
        <ms:languageDependent>true</ms:languageDependent>
        <ms:inputContentResource>
                <ms:processingResourceType>http://w3id.org/meta-share/meta-share/file1</ms:processingResourceType>
                <ms:language>
                        <ms:languageTag>en</ms:languageTag> <ms:languageId>en</ms:languageId>
                </ms:language>
                <ms:mediaType>http://w3id.org/meta-share/meta-share/text</ms:mediaType>
                <ms:dataFormat>http://w3id.org/meta-share/omtd-share/Json</ms:dataFormat>
                <ms:characterEncoding>http://w3id.org/meta-share/meta-share/UTF-8</ms:characterEncoding>
        </ms:inputContentResource>
        <ms:outputResource>
                <ms:processingResourceType>http://w3id.org/meta-share/meta-share/file1</ms:processingResourceType>
                <ms:language>
                        <ms:languageTag>en</ms:languageTag> <ms:languageId>en</ms:languageId>
                </ms:language>
                <ms:mediaType>http://w3id.org/meta-share/meta-share/text</ms:mediaType>
                <ms:dataFormat>http://w3id.org/meta-share/omtd-share/Json</ms:dataFormat>
                <ms:characterEncoding>http://w3id.org/meta-share/meta-share/UTF-8</ms:characterEncoding>
                <!-- annotations: :Address, :Date, :Location, :Organization, :Person, :Money, :Percent, :Token, :SpaceToken, :Sentence -->
                <ms:annotationType>http://w3id.org/meta-share/omtd-share/Person</ms:annotationType>
                <ms:annotationType>http://w3id.org/meta-share/omtd-share/Location</ms:annotationType>
                <ms:annotationType>http://w3id.org/meta-share/omtd-share/Organization</ms:annotationType>
                <ms:annotationType>http://w3id.org/meta-share/omtd-share/Date</ms:annotationType>
        </ms:outputResource>
```

# Describe the LT service according to the ELG metadata schema



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**Language resources & technologies**

- + Corpus (252)
- + Tool/Service (161)
- + Lexical/Conceptual resource (21)
- + Language description (7)

**Languages**

- + English (304)
- + Polish (64)
- + German (54)
- + French (52)
- + Modern Greek (1453-) (44)

460 search results

**2006 CoNLL Shared Task - Ten Languages** published

Corpus

2 views

2 downloads

2006 CoNLL Shared Task - Ten Languages consists of dependency treebanks in ten languages used as part of the CoNLL 2006 shared task on multi-lingual dependency parsing. The languages covered in this release are: Bulgaria ...

**Keyword:** corpus

**Languages:** Dutch Slovenian Spanish Turkish Portuguese ...

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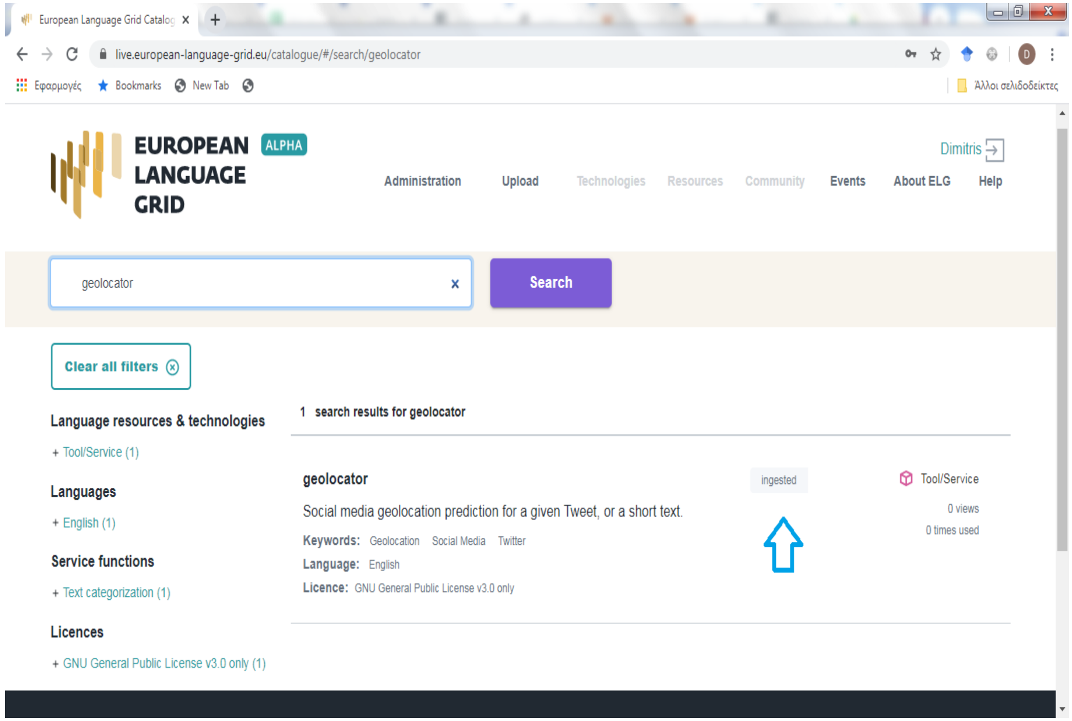
ELRA-END-USER-COMMERCIAL-MEMBER-NONCOMMERCIALUSE-1.0 ...

- Logged-in
- Assigned the “provider”

# Test LT service and publish (review process)

- The LT Service is assigned to a “reviewer”
- The LT tool is deployed to the ELG platform
  - The respective YAML files for kubernetes have to be created
- The LT Service is tested by the reviewer and the LT provider …
  - The service is “ingested” not “public”
  - Test via UI
  - Check container logs …
  - Troubleshoot …
- Finally it is published to the catalogue



geolocator

1 search results for geolocator

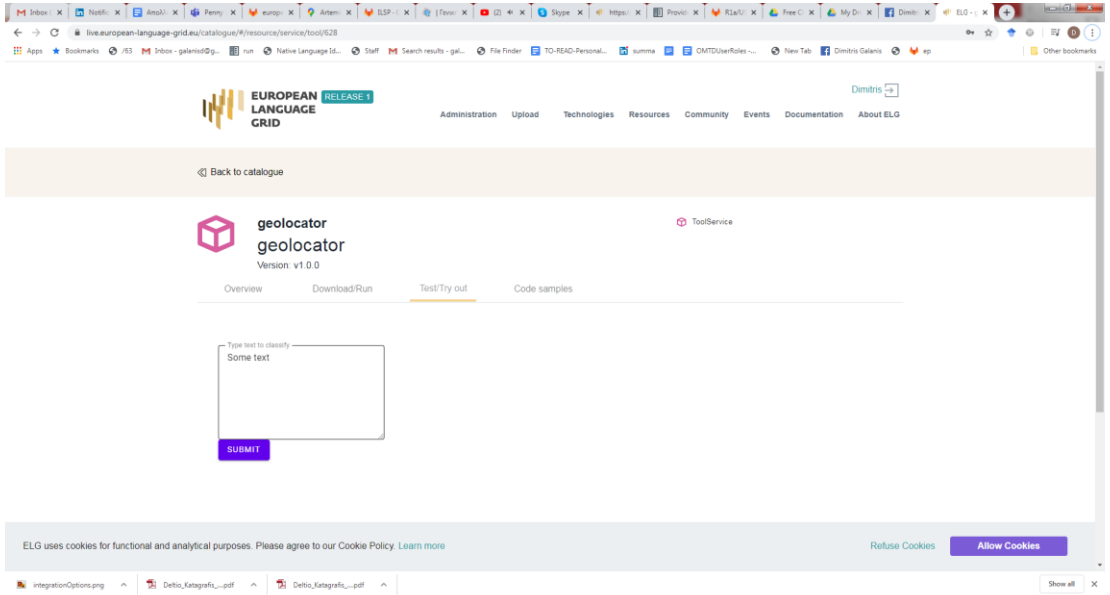
**geolocator**

Social media geolocation prediction for a given Tweet, or a short text.

**Keywords:** Geolocation Social Media Twitter

**Language:** English

**Licence:** GNU General Public License v3.0 only



**geolocator**

geolocator

Version: v1.0.0

Type text to classify: Some text

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# Provide a functional LT service: FAQs

- The task of packaging, deploying and registering an LT service to ELG is not “trivial”
- Many questions and several difficulties arise
- FAQs: https://european-language-grid.readthedocs.io/en/release1.0.0/all/RegisterFunc.html#frequently-asked-questions
- E.g.
  - Q: How many resources will be allocated for my LT container in the k8s cluster?
  - A: By default, 512MB of RAM and half a CPU core….
  - Q: What is a k8s namespace and when should an LT Provider ask for one?
  - A: A k8s namespace is a virtual sub-cluster, which can be used to restrict access to the respective containers that run within it. You should ask for a dedicated namespace when you need to ensure isolation and security

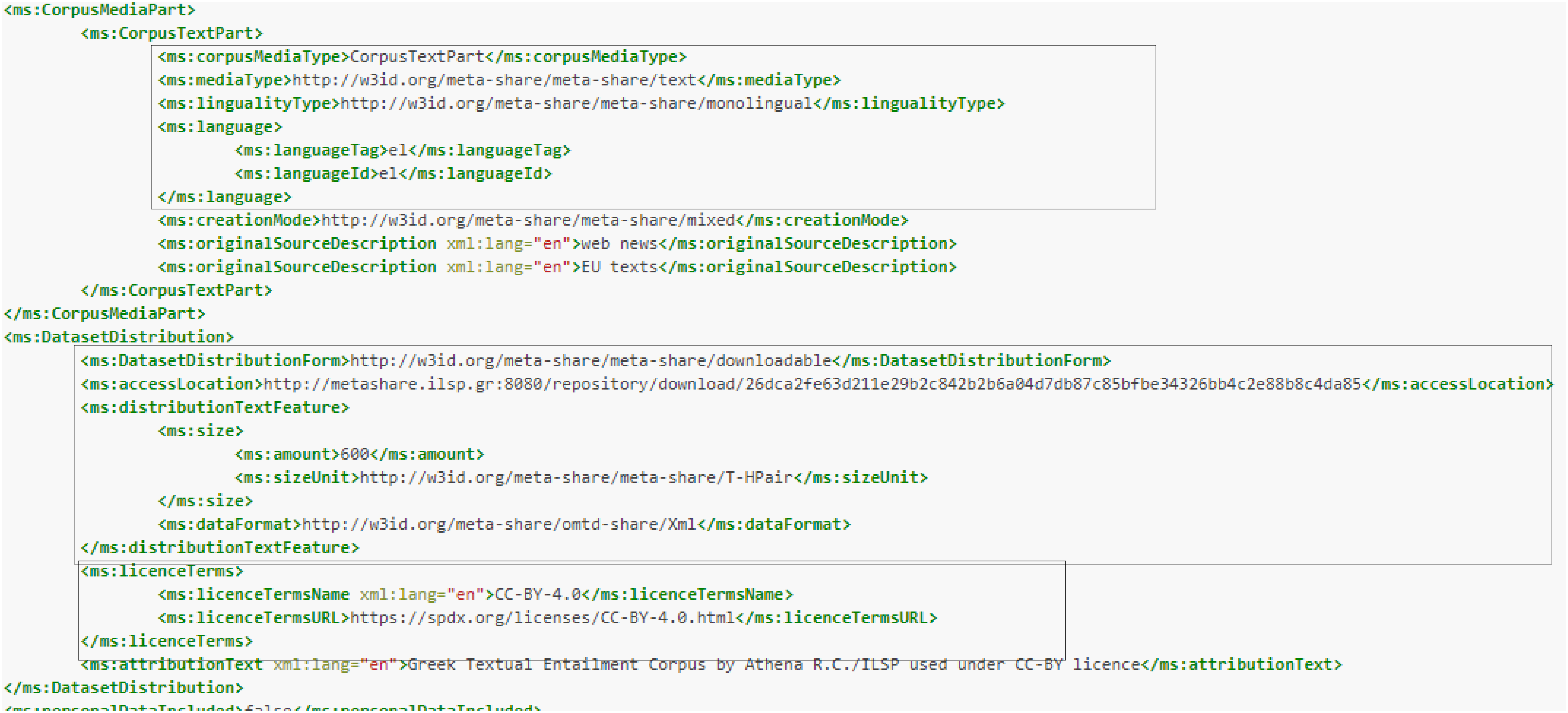
# Provide a data set

- Documentation:
  - https://european-language-grid.readthedocs.io/en/release1.0.0/all/RegisterNonFunc.html
  - https://european-language-grid.readthedocs.io/en/release1.0.0/all/RegisterCorpus.html
- Steps:
  - Register to the platform and ask (by email to contact@european-language-grid.eu) to be granted “provider” permissions;
  - Describe your dataset according to the ELG metadata schema -> upload
  - Provide access to it (?)

# Provide a data set (corpus)

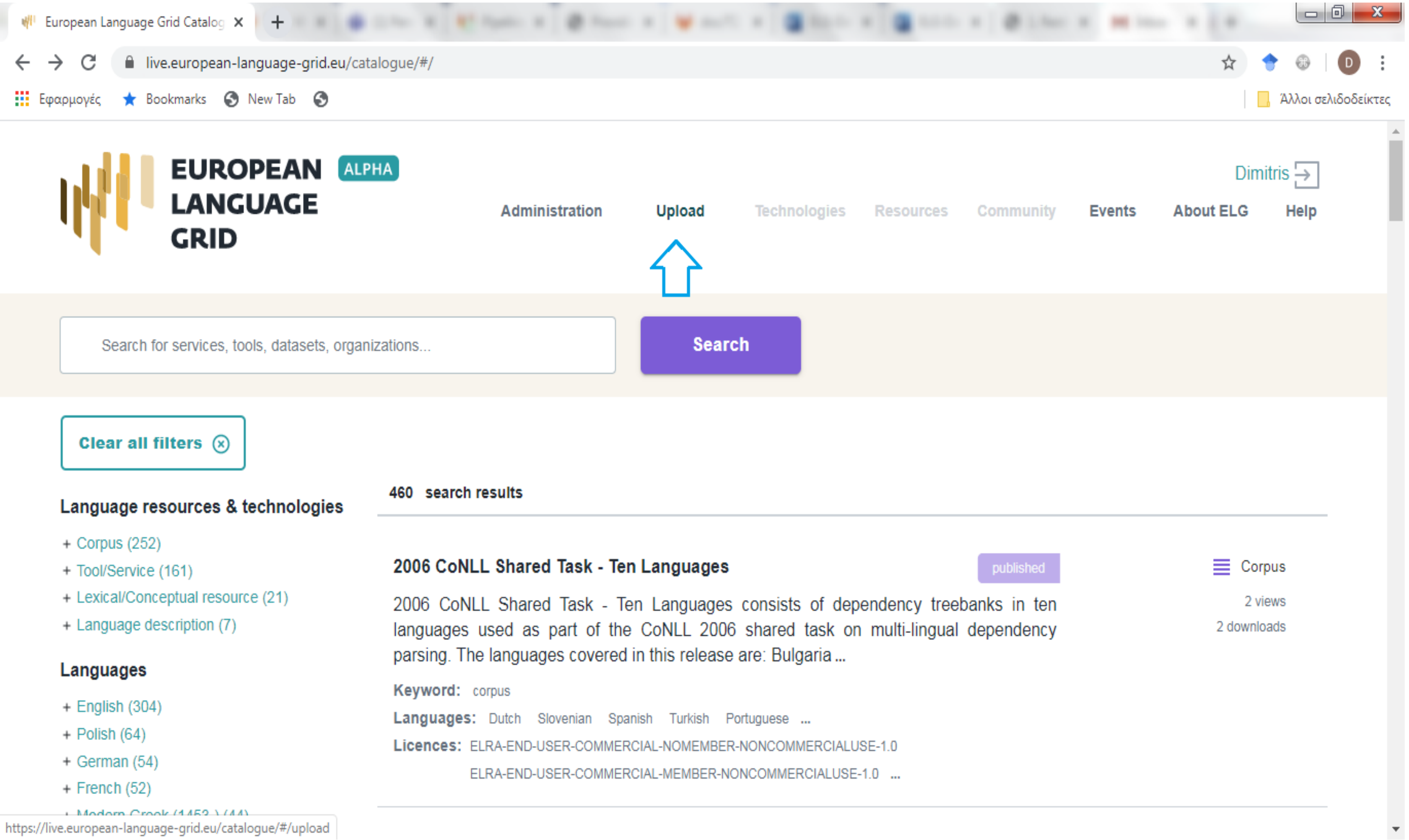
- Corpora are collections of data selected according to specific criteria:
- text corpora: monolingual, bilingual or multilingual collections of texts in a specific domain, e.g. news articles,
- corpora of audio recordings, e.g., lists of sentences recorded by individuals from a specific region with a dialect accent, etc.
- collections of videos, such as interviews with politicians
- corpora combining all of the above

# Provide a data set (example)



```
<ms:CorpusMediaPart>
        <ms:CorpusTextPart>
                <ms:corpusMediaType>CorpusTextPart</ms:corpusMediaType>
                <ms:mediaType>http://w3id.org/meta-share/meta-share/text</ms:mediaType>
                <ms:lingualityType>http://w3id.org/meta-share/meta-share/monolingual</ms:lingualityType>
                <ms:language>
                        <ms:languageTag>el</ms:languageTag>
                        <ms:languageId>el</ms:languageId>
                </ms:language>
                <ms:creationMode>http://w3id.org/meta-share/meta-share/mixed</ms:creationMode>
                <ms:originalSourceDescription xml:lang="en">web news</ms:originalSourceDescription>
                <ms:originalSourceDescription xml:lang="en">EU texts</ms:originalSourceDescription>
        </ms:CorpusTextPart>
</ms:CorpusMediaPart>
<ms:DatasetDistribution>
        <ms:DatasetDistributionForm>http://w3id.org/meta-share/meta-share/downloadable</ms:DatasetDistributionForm>
        <ms:accessLocation>http://metashare.ilsp.gr:8080/repository/download/26dca2fe63d211e29b2c842b2b6a04d7db87c85bfbe34326bb4c2e88b8c4da85</ms:accessLocation>
        <ms:distributionTextFeature>
                <ms:size>
                        <ms:amount>600</ms:amount>
                        <ms:sizeUnit>http://w3id.org/meta-share/meta-share/T-HPair</ms:sizeUnit>
                </ms:size>
                <ms:dataFormat>http://w3id.org/meta-share/omtd-share/Xml</ms:dataFormat>
        </ms:distributionTextFeature>
        <ms:licenceTerms>
                <ms:licenceTermsName xml:lang="en">CC-BY-4.0</ms:licenceTermsName>
                <ms:licenceTermsURL>https://spdx.org/licenses/CC-BY-4.0.html</ms:licenceTermsURL>
        </ms:licenceTerms>
        <ms:attributionText xml:lang="en">Greek Textual Entailment Corpus by Athena R.C./ILSP used under CC-BY licence</ms:attributionText>
</ms:DatasetDistribution>
<ms:personalDataIncluded>false</ms:personalDataIncluded>
```

# Provide a dataset
# Upload metadata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ELRA-END-USER-COMMERCIAL-MEMBER-NONCOMMERCIALUSE-1.0 ...

The dataset will be checked and published to the catalogue by a reviewer.

European Language Grid

# Thank you!

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