

Geocode
Plug-in Guide
3.0.1-1

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1 Introduction

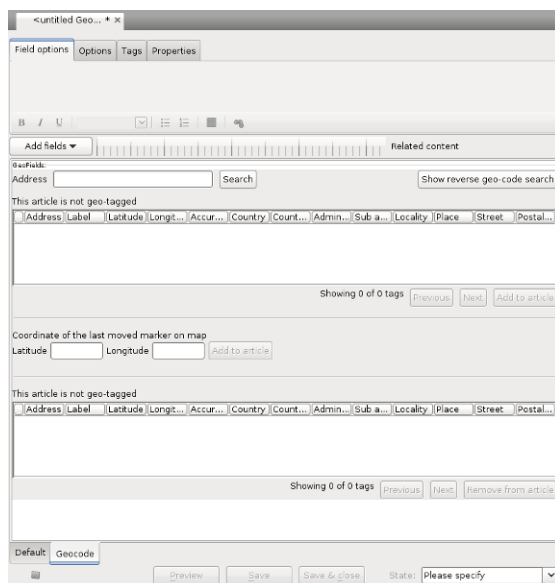
The Geocode plug-in adds easy-to-use geocoding functionality to Escenic Content Engine installations. It allows geographical location records (called **geotags**) to be associated with content items.

With the Geocode plug-in, journalists and editors working in Content Studio are able to easily add geotags to a content item, which are then stored along with the content item in the Content Engine database. Once these tags are stored with content items, they can subsequently be used in a variety of ways:

- To search for items in Content Studio by location: either address (city, state, country) or coordinates
- To plot locations on maps
- To create user services that search for news by location

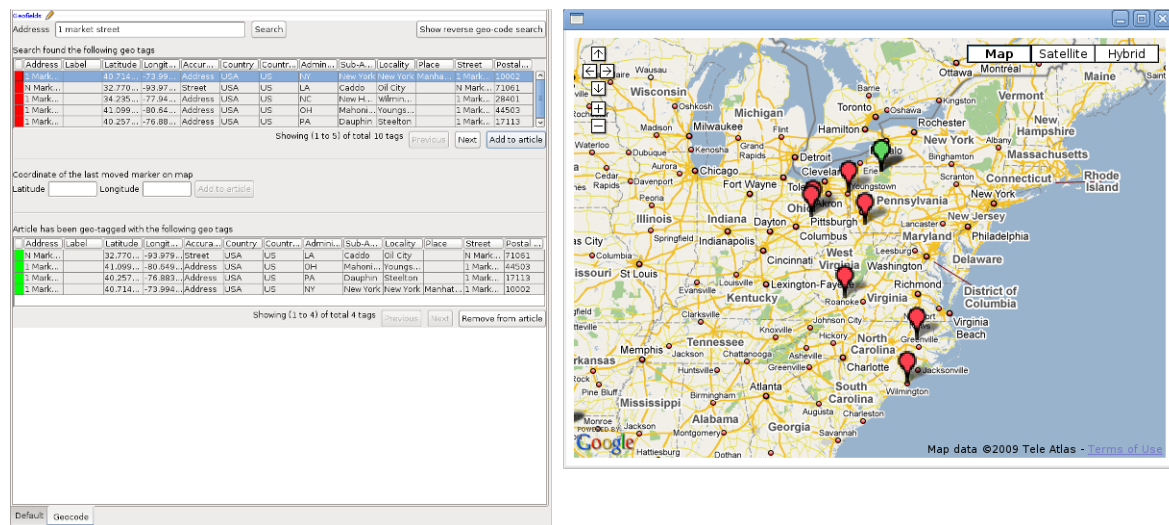
1.1 Using The Geocode Plug-in

When a user creates a "geocodable" content item in Content Studio, the Geocode plug-in is activated, enabling the display of geotags. The geocode field editor of a content item that does not yet have any geotags looks like this:



To add a geotag to a content item you can enter an address in the **Address** field and click on **Search**, in much the same way as if you were looking for an address in an online mapping service. In fact your query is simply passed on to an underlying mapping service such as Google Maps, and the results

of the search are displayed in the table immediately below the **Address** field. The results are also displayed in a map browser window as green or red pins.



A green pin on the map represents a location that matches the search but is not associated with the current content item. A red pin represents a location that matches the search and is associated with the current content item. These locations are also listed in the table at the bottom of the geocode field editor.

To add a geotag to the current content item, simply select one of the locations in the top table and click on the **Add to article** button. To remove a geotag, select one of the locations in the bottom table and click on the **Remove from article** button. Note that selecting a location in either of the tables will cause the map browser to zoom in on the corresponding pin.

If you have several geocoded content items open in Content Studio, then then the geocode field editor displays the tags associated with the currently selected content item. Once you select the geocode field editor, the map browser is also updated to display the same set of tags.

You can also search for geotags by coordinate using the **Show reverse geo-code search** function. You enter a latitude, a longitude and a radius, and all the geotags in the circle defined by these numbers are displayed in the results table.

2 Installation

The following preconditions must be met before you can install Geocode 3.0.1-1:

- The Content Engine is installed and in working order.
- The Escenic assembly tool has been extracted and successfully used to set up a test EAR file as described in the **Escenic Content Engine Installation Guide**.
- The Escenic Lucy plug-in is installed and in working order.
- You have the correct distribution file (**geocode-3.0.1-1.zip**).
- If you intend to use the default service provider implementation included with the Geocode plug-in then you need a Google Map API key to be able to access Google Maps. To get a key you need to register as a user of the API with Google.

The Content Engine and the software it depends on may be installed on one or several host machines depending on the type of installation required. In order to unambiguously identify the machines on which various installation actions must be carried out, the [Escenic Content Engine Installation Guide](#) defines a set of special host names that are used throughout the manual.

Some of these names are also used here:

assembly-host

The machine used to assemble the various Content Engine components into an enterprise archive or .EAR file.

engine-host

The machine(s) used to host application servers and Content Engine instances.

editorial-host

engine-host(s) that are used solely for (internal) editorial purposes.

The host names always appear in a bold typeface. If you are installing everything on one host you can, of course, ignore them: you can just do everything on the same machine. If you are creating a larger multi-host installation, then they should help ensure that you do things in the right places.

2.1 Install Geocode

Installing Geocode involves the following steps:

1. Log in as **escenic** on your **assembly-host**.
2. Download the Geocode distribution. If you have a multi-host installation with shared folders as described in the [Escenic Content Engine Installation Guide](#), then it is a good idea to download the distribution to your shared **/mnt/download** folder:

```
$ cd /mnt/download
$ https://user:password@maven.escenic.com/com/escenic/plugins
/geocode/geocode/3.0.1-1/geocode-3.0.1-1.zip
```

Otherwise, download it to some temporary location of your choice.

3. If the folder **/opt/escenic/engine/plugins** does not already exist, create it:

```
| $ mkdir /opt/escenic/engine/plugins
```

4. Unpack the Geocode distribution file:

```
| $ cd /opt/escenic/engine/plugins
| $ unzip /mnt/download/geocode-3.0.1-1.zip
```

This will result in the creation of an `/opt/escenic/engine/plugins/geocode` folder.

5. Log in as **escenic** on your **assembly-host**.
6. Run the **ece** script to re-assemble your Content Engine applications.

```
| $ ece assemble
```

This generates an EAR file (`/var/cache/escenic/engine.ear`) that you can deploy on all your **engine-hosts**.

7. **|** If you have a single-host installation, then skip this step.

On each **engine-host** on which you wish to run Geocode, copy `/var/cache/escenic/engine.ear` from the **assembly-host**. If you have installed an SSH server on the **assembly-host** and SSH clients on your **engine-hosts**, then you can do this as follows:

```
| $ scp -r escenic@assembly-host-ip-address:/var/cache/escenic/engine.ear /var/
| cache/escenic/
```

where *assembly-host-ip-address* is the host name or IP address of your **assembly-host**.

8. Deploy the EAR file and restart the Content Engine on each **engine-host** by entering:

```
| $ ece stop
| $ ece deploy
| $ ece start
```

| In the following description, *escenic-home* refers to the server folder in which the Content Engine is installed.

2.1.1 Configuration

The following sections describe how to configure the Geocode plug-in. In these instructions, the placeholder *escenic-config* is used to represent the path of your Escenic configuration, as defined with the `com.escenic.config` property in *escenic-home/assemblytool/assemble.properties*. If `com.escenic.config` is not defined, then *escenic-config* has a default definition of *escenic-home/localconfig*.

2.1.1.1 Configure the Solr search engine

Geocode requires some geocode-specific fields to be indexed by the Solr search engine. In order to ensure that this is done, you must:

1. Open the Solr `schema.xml` file for editing. This file is usually located in the `${solr.solr.home}/conf` folder.
2. Add the following element as a child of the `fields` element:

```
| <dynamicField name="geocode.*" type="string" indexed="true" stored="true"
|   multiValued="true"/>
```

3. Save the file and exit.

2.1.1.2 Set the Lucy SearchEngine Properties

By default, Lucy (which is used by the Geocode plug-in) looks for its search engine at `http://localhost:8080/solr`, which is the location of the default Lucy search engine, called `LucySearchEngine`. If this is not the Solr engine you want Lucy to use, then you will need to:

1. Copy `SearchEngine.properties` from `escenic-home/engine/plugins/geocode/misc/siteconfig/com/escenic/geocode/search/lucy/SearchEngine.properties` to `escenic-config/com/escenic/geocode/search/lucy/SearchEngine.properties`.
2. Open the copied file for editing.
3. Set the `solrURI` property to point to the correct Solr engine location. For example:


```
| solrURI=http://mysolrhost:8080/solr
```
4. Save the file and exit.

2.1.1.3 Configure the plug-in to use a Proxy Server

Content Studio uses whatever proxy is defined for the browser used to start it, and Geocode uses the same proxy (if any).

2.1.1.4 Add geocode fields to content types

In order to make content items "geocodable" you must add a special geocode field to their content type definitions in the `content-type` resource. The following examples shows what such field definitions should look like. The exact content of the field definitions depends on which map provider you use. For Google Maps, your field definition should look something like this:

```
<content-types xmlns="http://xmlns.escenic.com/2008/content-type"
  xmlns:geocode="http://xmlns.escenic.com/2009/studio/plugin/geocode"
  xmlns:ui="http://xmlns.escenic.com/2008/interface-hints"
  version="4">
  <!-- Please note the geocode namespace declaration above -->
  ...
  <content-type name="restaurant-review">
    ...
    <panel name="geocode">
      ...
      <field type="basic" name="com.escenic.geocode" mime-type="text/plain">
        <geocode:geocode-editor enabled="true">
          <geocode:google-api>
            <geocode:client-id<!-- Google Maps API for Business Client ID --></
geocode:client-id>
            <geocode:api-key<!-- Google Maps API Key --></geocode:api-key>
          </geocode:google-api>
        </geocode:geocode-editor>
      </field>
    </panel>
    ...
  </content-type>
  ...
</content-types>
```

For OpenStreetmap on the other hand, your field definition should look something like this:

```
<content-types xmlns="http://xmlns.escenic.com/2008/content-type"
  xmlns:geocode="http://xmlns.escenic.com/2009/studio/plugin/geocode"
```

```

        xmlns:ui="http://xmlns.escenic.com/2008/interface-hints"
        version="4">
<!-- Please note the geocode namespace declaration above -->
...
<content-type name="restaurant-review">
...
  <panel name="geocode">
    ...
    <field type="basic" name="com.escenic.geocode" mime-type="text/plain">
      <geocode:geocode-editor enabled="true">
        <geocode:osm>
          <geocode:nominatim-base-uri><!-- Nominatim Base URI --></
geocode:nominatim-base-uri>
          <geocode:reverse-nominatim-base-uri><!-- Reverse Nominatim Base URI --></
geocode:reverse-nominatim-base-uri>
          <geocode:tiles-uri><!-- Tiles URI --></geocode:tiles-uri>
          <geocode:tiles-attribution><!-- Tiles Attribution --></geocode:tiles-
attribution>
          <geocode:tiles-subdomains><!-- Tiles Sub Domains --></geocode:tiles-
subdomains>
        </geocode:osm>
      </geocode:geocode-editor>
    </field>
  </panel>
  ...
</content-type>
...
</content-types>

```

You must add one such field definition to each content type that you want to be able to geocode.

Note the following:

- A geocode field must have the name **com.escenic.geocode** (with all characters in lower case).
- Geocode fields contain elements belonging to a special **geocode** XML namespace. You must therefore add a declaration for this namespace to your **content-type** resource (see the bold text in the examples above).

The **geocode** namespace elements to be included in the field definition are:

geocode:geocode-editor

This element specifies that the field is a geocode editor field, and contains all the other elements. The **enabled** attribute must be set to **true**.

Either geocode:google-api or geocode:osm

- If you want to use Google Maps as your map provider, then you must add a **geocode:google-api** element. This element must contain either a **geocode:client-id** or a **geocode:api-key** element.
- If you want to use OpenStreetMap as your map provider, then you must add a **geocode:osm** element (see <http://wiki.openstreetmap.org>). This element must contain the following elements: **geocode:nominatim-base-uri**, **geocode:reverse-nominatim-base-uri**, **geocode:tiles-uri** and **geocode:tiles-attribution**. It may also contain a **geocode:tiles-subdomains** element.

geocode:client-id

The value you enter here must be a Google Maps API for Business Client ID, obtained by registering with Google as a user of their mapping API. You **must** specify either **client-id** or **api-key**.

geocode:api-key

The value you enter here must be a Google Maps API Key, obtained by registering with Google as a user of their mapping API. You **must** specify either **client-id** or **api-key**.

geocode:nominatim-base-uri

The value you enter here must be the URI of a Nominatim search service, see <http://wiki.openstreetmap.org/wiki/Nominatim>. To use MapQuest Open, for example, specify the following:

```
| http://open.mapquestapi.com/nominatim/v1/search
```

geocode:reverse-nominatim-base-uri

The value you enter here must be the URI of a Nominatim reverse search service, see <http://wiki.openstreetmap.org/wiki/Nominatim>. To use MapQuest Open, for example, specify the following:

```
| http://open.mapquestapi.com/nominatim/v1/reverse
```

geocode:tiles-uri

The value you enter here must be the URI of a tiles provider (see <http://wiki.openstreetmap.org/wiki/Tiles>). To use MapQuest Open, for example, specify the following:

```
| http://{s}.mqcdn.com/tiles/1.0.0/osm/{z}/{x}/{y}.png
```

geocode:tiles-attribution

The value you enter here must be an attribution to OpenStreetMap and the tiles provider you are using (see http://wiki.openstreetmap.org/wiki/Legal_FAQ). To use MapQuest Open, for example, specify the following:

```
| <![CDATA[Data, imagery and map information provided by <a href="http://open.mapquest.co.uk" target="_blank">MapQuest</a>, <a href="http://www.openstreetmap.org/" target="_blank">OpenStreetMap</a> and contributors, <a href="http://creativecommons.org/licenses/by-sa/2.0/" target="_blank">CC-BY-SA</a>.]>
```

geocode:tiles-subdomains

You may use this element to specify a comma-separated list of subdomains of the tiles provider you use (see <http://wiki.openstreetmap.org/wiki/Tiles>). To use MapQuest Open, for example, specify the following:

```
| otile1,otile2,otile3,otile4
```

If you have implemented your own service provider class that makes use of a different mapping service, then you can replace the **google-api** or **osm** element with other elements holding whatever identification parameters are required by your chosen service, and program your service provider class to retrieve and use the parameters as required.

For general information about the **content-type** resource and how to edit it, see the **Escenic Content Engine Resource Reference**.

2.2 Verify The Installation

To verify the status of the Lucy installation, open the Escenic Admin web application (usually located at <http://server/escenic-admin>) and click on **View installed plugins**. The status of the plug-ins is indicated as follows.



The plug-in is correctly installed.



The plug-in is not correctly installed.

3 Using the Geocode Field in Templates

To help the template developers retrieve geocoded articles, the plug-in ships with some struts Action and ActionForm.

com.escenic.geocode.publication.struts.GeoArticleSearchAction: the Action class that can be used to search for geocoded Articles

com.escenic.geocode.publication.struts.GeoArticleSearchForm: the ActionForm used by the action class mentioned above.

The form and the action class can be configured in your struts-config.xml as follows:

```
<struts-config>
  <form-beans>
    <form-bean name="com.escenic.geocode.presentation.struts.GeoArticleSearchForm"
      type="com.escenic.geocode.presentation.struts.GeoArticleSearchForm"/>
  </form-beans>
  <action-mappings>
    <action path="/geoArticleSearch"
      type="com.escenic.geocode.presentation.struts.GeoArticleSearchAction"
      name="com.escenic.geocode.presentation.struts.GeoArticleSearchForm"
      scope="request"
      validate="false"
      parameter="actionCommand">
      <forward name="success" path="/template/common.jsp"/>
      <forward name="error" path="/template/common.jsp"/>
    </action>
  </action-mappings>
  <message-resources parameter="com.escenic.geocode.Resources"/>
</struts-config>
```

3.1 Form Properties

A brief explanation of the form properties is as follows:

publicationIds: the publications in which to search for articles

searchExpression: the text to look for in article fields

fromLatitude: the start latitude against which article location is to be tested

fromLongitude: the start longitude against which article location is to be tested

toLatitude: the end latitude against which article location is to be tested

toLongitude: the end longitude against which article location is to be tested

startDay: the start day against which article date is to be tested

startMonth: the start month against which article date is to be tested

startYear: the start year against which article date is to be tested

toDay: the end day against which article date is to be tested

toMonth: the end month against which article date is to be tested

toYear: the end year against which article date is to be tested

sectionIds: the ids of the sections in which to search for articles

searchSubSectionAllowed: indicates whether or not the subsections of sections specified with **sectionIds** should be searched as well

articleTypes: restricts the search to specific article types

Please see javadoc for further information about the form properties.

An example war file is shipped with the plug-in that shows the basic functionality of the plug-in in publication templates.

4 Writing your own map service

Geocode plug-in allows you to write your own map services and plug them into the plug-in. The plug-in provides some java interfaces. Any class implementing them can be used with the plug-in to provide the functionality. Below is a set of interfaces and abstract classes that you can implement to provide custom map services.

com.escenic.geocode.studio.spi.GeocodeServiceSpi

This abstract class declares the methods required to create **GeocodeService** and **MapView**.

com.escenic.geocode.studio.service.GeocodeService

This interface declares the methods required by the plug-in to allow a user to search for geotags based on address. The interface also declares the methods required by the plug-in to enable reverse geo searching. This allows users to search for geotagged locations close to a specified latitude and longitude.

com.escenic.geocode.studio.mapviewer.MapViewer

This interface defines the methods needed to display a custom map in the Geocode plug-in.

Please see the Javadoc for more information about these the interfaces and classes.