GeoTriples Web Application Tutorial

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Installation

The user can build the GeoTriples web application from sources, or alternatively, download the pre-built package provided. This tutorial has been tested against Ubuntu 16.04 and macOS Sierra 10.12 distributions.

Build from source

Assuming Apache Maven and Java 8 JDK are already installed in your system, download the source code from <u>https://bitbucket.org/despinaSaptelianou/geotriples-webapp</u>:

\$ git clone https://bitbucket.org/despinaSaptelianou/geotriples-webapp

Change directory to the root directory of GeoTriples web application code: \$ cd GeoTriples-WebApp

Compile the source code and generate the jar executable: \$ mvn package # build

Download the pre-built executable

The pre-built executable is available for download at https://bitbucket.org/despinaSaptelianou/geotriples-webapp/downloads/geotriples-web-app.jar

Running

Running the application is quite simple. The package is bundled with the Apache Jetty web server and there is no need to deploy a separate installation of a web server. The application server can be customised using the application.properties file or by providing properties through the java command line arguments.

Configuration using the properties file

Create a file named application.properties. Change directory to the directory containing the executable (geotriples-web-app.jar). Then create the properties file: \$ touch application.properties

Open it using your favourite editor and add the following properties

EMBEDDED SERVER CONFIGURATION
Server HTTP port
server.port=8080
Network address to which the server should bind to
server.address=127.0.01
MULTIPART (UPLOAD CONFIGURATION)
Max file size. Values can use the suffixed "MB" or "KB" to indicate a Megabyte or Kilobyte size
spring.http.multipart.max-file-size=128MB

spring.http.multipart.max-request-size=128MB # Max request size. Values can use the suffixed "MB" or "KB" to indicate a Megabyte or Kilobyte size

storage.location=AA # Name of the directory where the uploaded content will be stored

Using the above configuration, the server will listen at port 8080 and accept HTTP requests with destination address: 127.0.01. Users can upload files with size up to 128MB and with total request size 128MB. The uploaded files will be stored in local disk under the directory "AA".

Ensure the application.properties file is located side by side with the GeoTriples jar file.

Configuration using Java command line arguments

All the aforementioned properties can also be provided as java command line arguments when running the web application (see below)

Running the web application

Execute the jar file using the java command: \$ java -jar geotriples-web-app.jar

alternatively provide the desired properties as arguments: \$ java -jar -Dserver.port=8080 -Dstorage.location=AA geotriples-web-app.jar

which would override the "server.port" and "storage.location" values given in the application.properties file.

 2017-10-15 19:58:35.619 INFO 41476 --- [
 main] o.e.jetty.server.AbstractConnector
 : Started

 ServerConnector@505a9d7c{HTTP/1.1,[http/1.1]}{0.0.0.08080}
 2017-10-15 19:58:35.620 INFO 41476 --- [
 main] .s.b.c.e.j.JettyEmbeddedServletContainer : Jetty started on port(s) 8080 (http/1.1)

 2017-10-15 19:58:35.625 INFO 41476 --- [
 main] gr.uoa.di.geotriples.Application
 : Started Application in 16.85 seconds (JVM running for 17.592)

Wait until the output looks like the following:

Usage

The web application is up and running at <u>http://127.0.01:8080</u>

\leftrightarrow \rightarrow C (i) localhost:8080/login	
GeoTriples WUI	
The email or password you have entered is invalid, try again.	
Email address	
1	
Password	
Remember me	
Sign in	

The application requires authentication before allowing the user to upload and transform their data into RDF. A user can register himself at <u>http://127.0.01:8080/registration</u> using their email address and a new password.

$\leftarrow \rightarrow G$	Iocalhost:8080/registration	1	☆ ✓ Ο
GeoTriples	s WUI		anonymousUser▼
Calendar	Please Sign Up		
	Email	Email address	
	Password	Password	
	Repeat Password	Password	
		Sign up	
		Already have an account? Sign In	

After the successful login, the main dashboard is loaded. Here, the user can upload files and convert them to RDF graphs. The screen looks like:

GeoTriple	s WUI				sdi1100111@gmail.com
	File to upload:				
	Choose file No file chosen				
	Select the files to upload				
	Upload				
	Τύπος	Όνομα Αρχείου	Διαγραφή	Παραγωγή Mapping	
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Start by downloading the Greek administrative areas Shapefile from the Global Administrative Areas website: <u>http://www.gadm.org/country</u>. Select Greece in the Country, and Shapefile in the File-format comboboxes respectively.

Global Administrative Areas Boundaries without limits
Download Known problems About Contact
Home
Download
Country
Greece 🛟
File format
Shapefile 🗘
ок

Unzip the downloaded archive and return to GeoTriples dashboard. Upload all files starting with GRC_adm1. The screen looks like:

File to upload:			
Choose file No file chosen			
Select the files to upload			
Upload			
Τύπος	Όνομα Αρχείου	Διαγραφή	Παραγωγή Mapping
	GRC_adm1.cpg	×	
	GRC_adm1.dbf	×	
	GRC_adm1.prj	×	
SHP	GRC_adm1.shp	×	B
=	GRC adm1.shx	×	

The uploaded files are listed in a table. The last column (if applicable) contains a button used to generate the default RML mapping for the corresponding file. Push the button to generate the default mapping for the Shapefile. Notice that all files that constitute the Shapefile (all starting with GRC_adm1) should be uploaded in order to be able to produce the mapping/RDF dump.

The user can edit the generated mapping or proceed with the default mapping as is.

<pre>@prefix rr: <http: ns="" r2rml#="" www.w3.org="">.</http:></pre>	
<pre>@prefix rml: <http: ns="" rml#="" semweb.mmlab.be=""> .</http:></pre>	
<pre>@prefix ql: <http: ns="" ql#="" semweb.mmlab.be=""> .</http:></pre>	
<pre>@prefix xsd: <http: 2001="" www.w3.org="" xmlschema#="">.</http:></pre>	
@base <http: base="" geotriples.eu=""> .</http:>	
<pre>@prefix rrx: <http: ns="" r2rml-ext#="" www.w3.org="">.</http:></pre>	
@prefix rrxf: <http: def="" functions="" ns="" r2rml-ext="" www.w3.org=""></http:> .	
<pre>@prefix ogc: <http: geosparql#="" ont="" www.opengis.net="">.</http:></pre>	
@prefix schema: <http: schema.org=""></http:> .	
<pre>@prefix onto: <http: example.com="" ontology#="">.</http:></pre>	
<#GRC_adm1>	
rml:logicalSource [
rml:source "GRC_adm1.shp";	
rml:referenceFormulation ql:SHP;	
rml:iterator "GRC_adm1";	
];	
rr:subjectMap [
rr:template "http://example.com/GRC_adm1/id/{GeoTriples	sID)";
rr:class onto:GRC_adm1;	
];	
rr:predicateObjectMap [
rr:predicateMap [rr:constant onto:hasID_0];	
rr:objectMap [
rr:datatype xsd:long;	
rml:reference "ID_0";	
];	
];	
rr:predicateObjectMap [
rr:predicateMap [rr:constant onto:hasISO];	
rr:objectMap [

Click the DumpRDF button to generate the RDF dump. The output file should be downloaded in your Downloads directory. The RDF graph is stored in N-TRIPLES format. The next figure depicts the contents of the output.

	output (10).txt ~
<pre>chttp://example.com/GRC_adml/Geometry/1> chttp://www.w3.org/1999/82/22-rdf-syntax-nstyp chttp://example.com/GRC_adml/Geometry/1> chttp://www.w3.org/1999/82/22-rdf-syntax-nstyp chttp://example.com/GRC_adml/Geometry/1> chttp://www.opengis.net/ont/geosparql#sisD> "fa chttp://example.com/GRC_adml/Geometry/1> chttp://www.opengis.net/ont/geosparql#sisD> "fa chttp://example.com/GRC_adml/Geometry/1> chttp://www.opengis.net/ont/geosparql#sisD> "fa chttp://example.com/GRC_adml/Geometry/1> chttp://www.opengis.net/ont/geosparql#sisD> "fa chttp://example.com/GRC_adml/Geometry/1> chttp://www.opengis.net/ont/geosparql#sisD> chttp://example.com/GRC_adml/Geometry/1> chttp://example.com/GRC_adml/Geometry/1> chttp://www.opengis.net/ont/geosparql#sisD> chttp://example.com/GRC_adml/Geometry/1> chttp://www.opengis.net/ont/geosparql#sisD> chttp://example.com/GRC_adml/Geometry/1> chttp://www.opengis.net/ont/geosparql#sisD> chttp://example.com/GRC_adml/Geometry/1> chttp://www.opengis.net/ont/geosparql#sisD> chttp://sisD> chttp:/</pre>	output (10).bt
35.4329185485444, 27.002080917358455 35.431800642285156, 27.002639776597612 35.4318465 27.0045392431652 35.43125135287806, 27.005526947021655 35.432081129882926, 27.005422592 35.43236160278332, 27.00819015552947 35.4320875825, 27.00857282287592 35.432 45.43256160278312, 27.00958061218273 35.4326407568365, 27.00857282287592 35.432 45.43256178741, 27.00958061218273 35.4321809320809, 27.00958061218273 35.4347167968 35.433750076293945 35.43347167968744, 27.01457977249332 35.43347167968744, 27.01457977 27.01513862609609 35.43364097568365, 27.01513862608969 35.4326160278332, 27.0151470989 27.01513862609609 35.4386497818, 27.0115462060969 35.432616027833, 27.0151470989 27.01513862609609 35.4386497868748, 27.0151386714746094 35.42816087188, 27.01457097 27.01513862609609 35.43864978807818, 27.01462060546875 35.4386087818, 27.0154170899 27.01513862609609 35.438749804472656, 27.015386174746094 35.428706172266, 27.0145707	6982356, 27.002639770507812 35.431526124082145, 27.00485992431652 35.431529987733, 27.00597109850545 35.431526140482145, 27.00597109850545 35.431526140482145, 27.005971098505495 35.4315845141 35.43263129882926, 27.0075089512085245, 27.008751208526545 35.4321654358244, 27.009304046630916 55.27.0087522827592 35.43291473880572, 27.009304046630916 55.4321654368404, 27.009304046630916 55.4321654368404, 27.009304046630916 55.4321654368404, 27.009304046630916 54.3421654365404, 27.0043140253527 548395, 27.01130465132080 35.4331613265125287834, 7.01376087623945 35.433756152587834, 72.01041412353527 548395, 27.0131508765063945 35.43376152587834, 27.01376087623945 35.433756152587834, 27.0141470959908 35.4331693270452945 35.43376152587845, 72.01376087623945 35.43376152587845, 72.0151365608069 35.432567865, 998 35.4304160717779, 27.01547707909908 35.432152587844, 27.01513865080969 35.432567865, 998 35.4304160717779, 27.01547777999908 35.432152587844, 27.0151386708698 35.432567865, 998 35.4304160717779, 27.01547779799908 35.432152587845, 27.0151386708698 35.432567865, 998 35.430416071779, 27.0154777979794932 35.43041992187494, 27.0151386708698 35.432567865, 998 35.4326149756762647, 27.015138670867087 34.2075998657, 57.00147287775, 27.01513867087672797294332 35.43041992187494, 27.01513867087672794332 35.4207509759455787845, 27.01513876707294332 35.420750975945578786, 27.01513876777294332 35.420750975945578786, 27.01513876775977294332 35.43041992187455578786, 27.0151387775977294332 35.42075907579945777, 27.015138777794758777294332 35.42075907579759453294575678677, 27.01513877758775977594752945578786, 27.005477759759477597759475294575877867, 27.0151387787759775977597597597597597597597597597597

The dashboard explained

The dashboard is the place where user can upload files and browse/process the already uploaded ones. The user can delete any file using the **X** button and generate the RML mapping using the **b** button. Note that GeoTriples can process only specific file types: CSV, Shapefiles, XML and JSON.

Unsupported file types are automatically identified and the generate mapping button (L) is not available for them.

File to upload:			
Choose file No file chose	n		
Select the files to upload			
Upload			
Τύπος	Όνομα Αρχείου	Διαγραφή	Παραγωγή Mapping
	GRC_adm1.cpg	×	
	GRC_adm1.dbf	×	
	GRC_adm1.prj	X	
SHP	GRC_adm1.shp	×	
	GRC_adm1.shx	X	
	pre registration 17 full time.pdf	×	
	ReadMeVaseis.txt	×	
	Sacramentorealestatetransactions csv	×	