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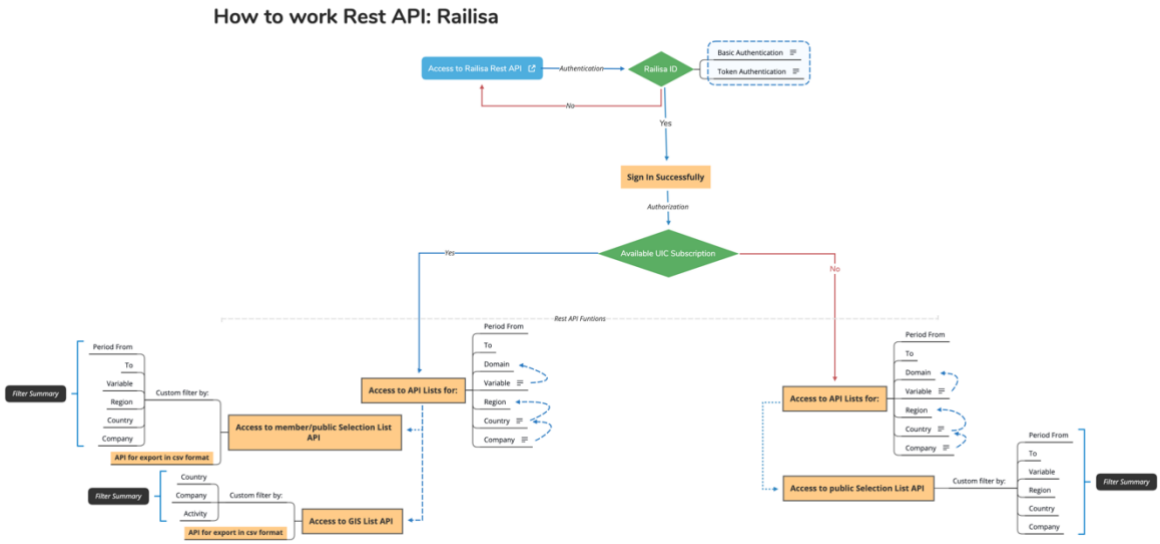
1 Abstract

The purpose of this document is to explain to the end user how to use the Rest API provided by Railisa.

2 Railisa Rest API proof of concept

The Railisa Rest API implemented as the Railisa web application module.
This module provides to the end user with all the functionalities offered by Railisa Application, but all the functionalities will be provided as REST APIs.
Practically the end user will have the possibility to integrate these functionalities in his own application, having the possibility to make queries and to obtain the data in JSON or csv format.
The figure below shows the logical flow of Railisa Rest API.



3 Functionalities of Railisa Rest API

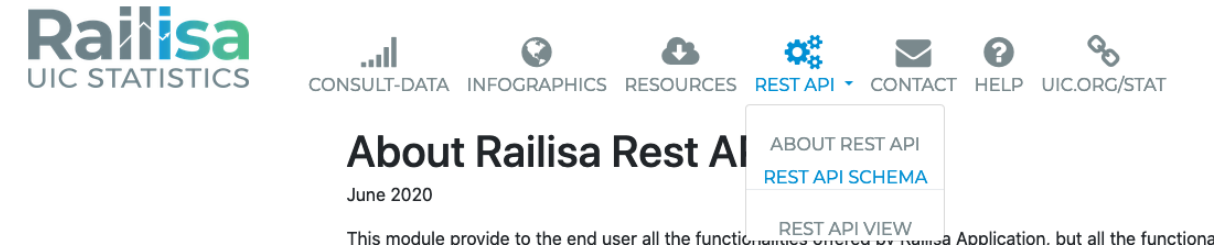
Railisa Rest API provide the following functionalities:

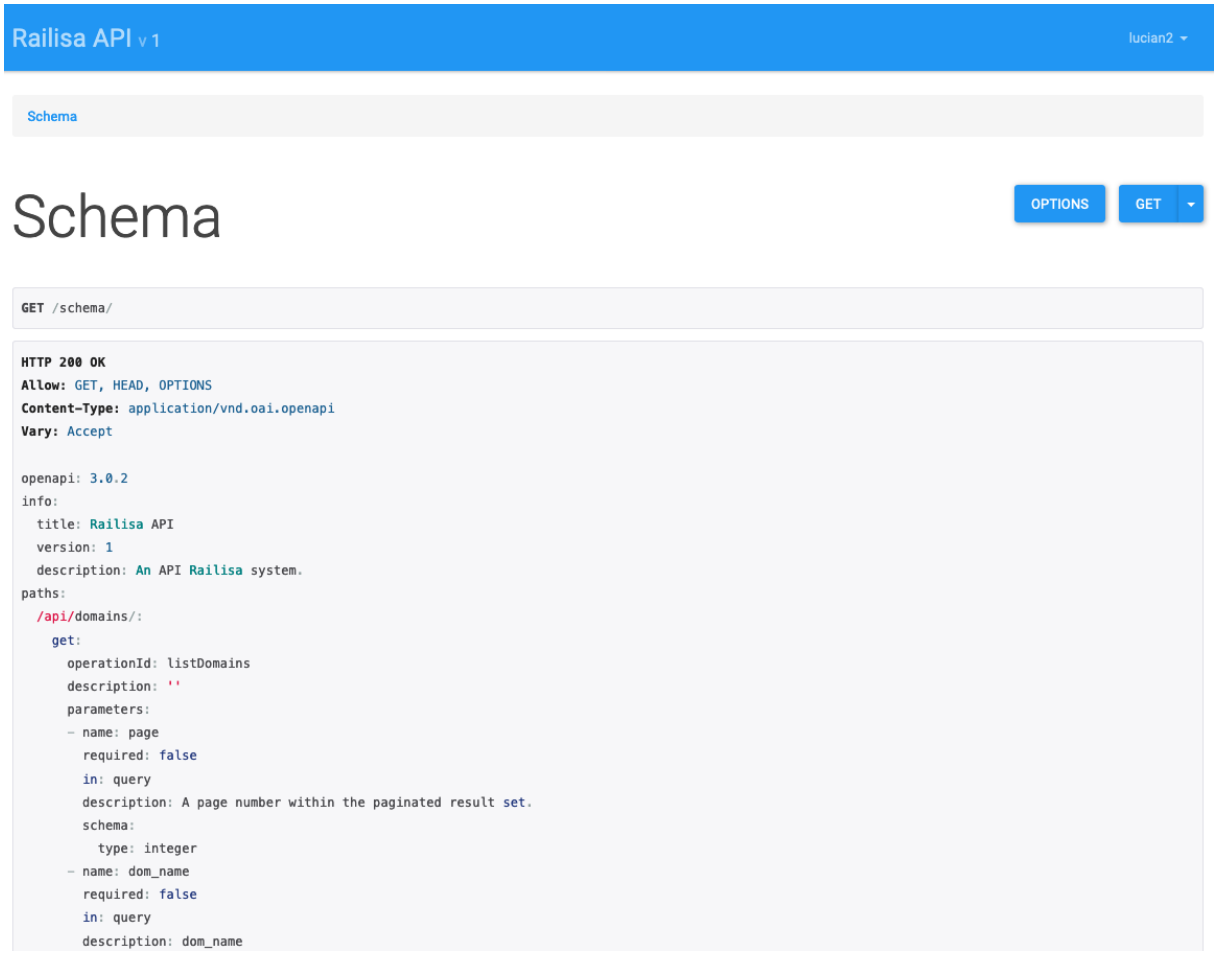
- Authentication mechanism based on Basic Authentication or Token Authentication
- Authorization mechanism based on groups permissions
- APIs for reading nomenclatures for Selections
    - List of domains
    - List of filterable variables by domain
    - List of regions
    - List of filterable countries by regions
    - List of filterable company by countries
- API for selections data with dynamic filtering capabilities based on APIs for reading nomenclatures for Selections
- API for CSV export based on API for selections data
- APIs for reading nomenclatures for Infographics (will be available in the next version of Rest API)
    - List of countries
    - List of filterable company by countries
    - List of filterable activities by company
- GIS API for selections data with dynamic filtering capabilities based on APIs for reading nomenclatures for Infographics

4 Open API Schema

This Rest API was developed in accordance with the specifications of OpenAPI version 3.

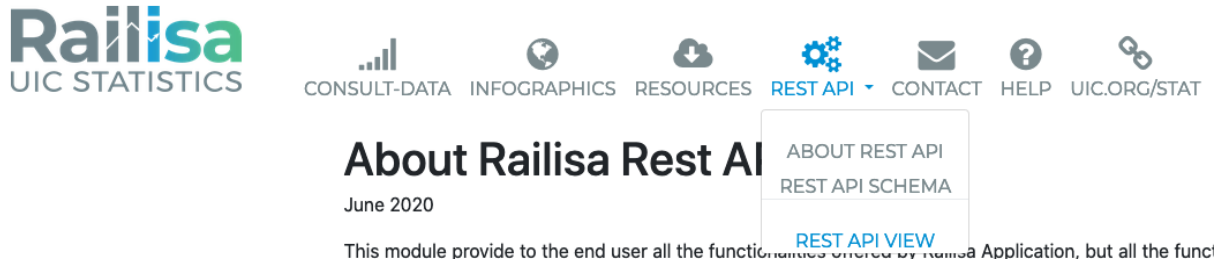
The Rest API Schema Provide the Rest API definitions. This definition can be used by documentation generation tools to display the API, code generation tools to generate servers and clients in various programming languages, testing etc.

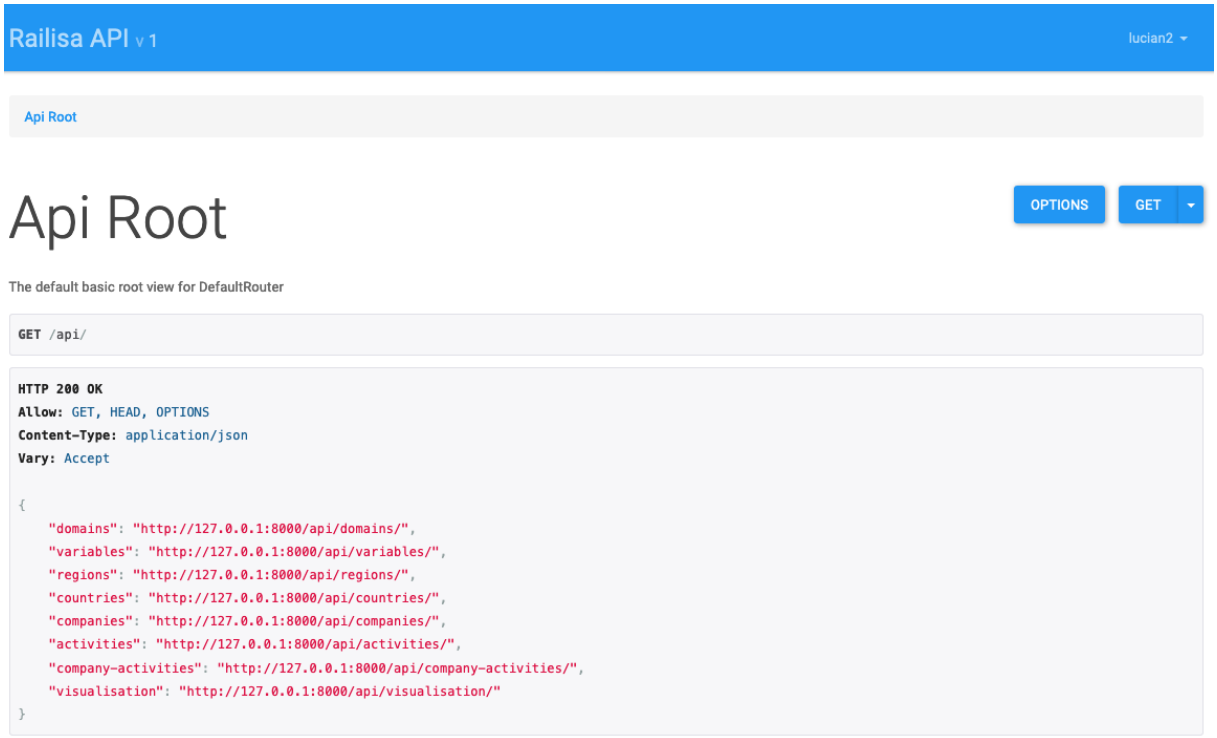




5 Rest Api View

It offers a web interface, through which you can perform queries in visual mode.
This will help you test the features offered by this Rest API.
As well as how to integrate this service in your applications.





6 Authentication mechanism based on Basic Authentication or Token Authentication

Access to the Rest API functions is only available to users registered in the system.

Rest API provides two authentication mechanisms: Basic Authentication or Token Authentication.

If you use the Basic Authentication method, the user must provide his Username and Password when calling each function called

Java Script example for use Basic Authentication:

```
var form = new FormData();
form.append("username", "test");
form.append("password", "test12345");

var settings = {
  "async": true,
  "crossDomain": true,
  "url": "https://uic-stats-pp.uic.org/api/domains/",
  "method": "GET",
  "headers": {
    "Authorization": "Basic bHVjaWFuMjphbGU1MjE5NzM=",
    "User-Agent": "PostmanRuntime/7.19.0",
    "Accept": "*/*",
    "Cache-Control": "no-cache",
    "Postman-Token": "0f7cca40-5b18-425f-a5c9-a9b0971c4f7a,53332392-be0b-4d50-8dc7-65e9abebb64a",
    "Host": "uic-stats-pp.uic.org",
    "Content-Type": "multipart/form-data; boundary=--------------------------156797782820618184521152",
    "Accept-Encoding": "gzip, deflate",
    "Content-Length": "286",
    "Connection": "keep-alive",
    "cache-control": "no-cache"
  },
  "processData": false,
  "contentType": false,
  "mimeType": "multipart/form-data",
  "data": form
}
```

```
28.
29.  $.ajax(settings).done(function (response) {
30.    console.log(response);
31.  });
32.
```

If you use the Token Authentication, this involves 2 steps

- Obtaining the token
- Token use when calling each function called

Java Script example for obtain Token:

```
1. var form = new FormData();
2. form.append("username", "test");
3. form.append("password", "test12345");
4.
5. var settings = {
6.   "async": true,
7.   "crossDomain": true,
8.   "url": " https://uic-stats-pp.uic.org/api/api-token-auth/",
9.   "method": "POST",
10.    "headers": {
11.      "cache-control": "no-cache",
12.      "Postman-Token": "04655c10-4bc9-45e8-8efe-a13f02785981"
13.    },
14.    "processData": false,
15.    "contentType": false,
16.    "mimeType": "multipart/form-data",
17.    "data": form
18.  }
19.
20.  $.ajax(settings).done(function (response) {
21.    console.log(response);
22.  });
23.
```

Java Script example for use Token Authentication:

```
1. var form = new FormData();
2. form.append("username", "test");
3. form.append("password", "test12345");
4.
5. var settings = {
6.   "async": true,
7.   "crossDomain": true,
8.   "url": "https://uic-stats-pp.uic.org/api/domains/",
9.   "method": "GET",
10.    "headers": {
11.      "Authorization": "Token tutyu567567gfhgfghj6765713gfhgfh908809",
12.      "User-Agent": "PostmanRuntime/7.19.0",
13.      "Accept": "*/*",
14.      "Cache-Control": "no-cache",
15.      "Postman-Token": "df4a65b2-50d8-4496-b5f0-fe5d604c1403,206a097a-aa01-4b16-
   a75f-f64144c9ba6f",
16.      "Host": "uic-stats-pp.uic.org",
17.      "Content-Type": "multipart/form-data; boundary=--------------------------
   876253164551911932612168",
18.      "Accept-Encoding": "gzip, deflate",
19.      "Content-Length": "286",
20.      "Connection": "keep-alive",
21.      "cache-control": "no-cache"
```

```
  },
  "processData": false,
  "contentType": false,
  "mimeType": "multipart/form-data",
  "data": form
}

$.ajax(settings).done(function (response) {
  console.log(response);
});

```

R example for use Token Authentication:

```
# Title     : Railisa R Client for Rest API. Obtain Token for Authenticatiobn
# Objective : Demo. Haw to consuming Railisa Rest API in R.
# Created by: lucian
# Created on: 07/08/2020

#install.packages("httr")

#Require the package so you can use it
require("httr")
 #install.packages("jsonlite")

 #Require the package so you can use it
 require("jsonlite")

 #Paste_API_Username_Here. Change with your Railisa Username
 Username <- "Test"
 #Paste_API_Password_Here. Change with your Railisa password
 Password <- "test12345"

 #Base URL Railisa rest API
 token_url <- "https://uic-stats-pp.uic.org/api/api-token-auth/"

 login <- list(
   username = Username,
   password = Password
 )

 #this directive are used because the SSL certificat on Railisa preproduction was expired
 httr::set_config(config(ssl_verifypeer = 0L))

 token <- POST(token_url, body = login, encode = "form")

 get_token <- content(token, "text", encoding = "UTF-8")

 #Obtain Token for Authentication
 #The results are format "[1] "{\"token\":\"tutyu567567gfhgfghj6765713gfhgfh908809\"}""
 # Token values is tutyu567567gfhgfghj6765713gfhgfh908809
 #get_token
 get_token_json <- fromJSON(get_token, flatten = TRUE)
 get_token_df <- as.data.frame(get_token_json)
 get_token_df

```

Python example for use Token Authentication:

```
 def login(username, password):
    url = 'https://uic-stats-pp.uic.org/api/api-token-auth/'
    payload = {'username': username,
               'password': password}
```

```
    files = []
    headers = {}
    response = requests.request("POST", url, headers=headers, data=payload, files=files, verify=ssl.CERT_NONE)
    return response.json()['token']

```

7 APIs for reading nomenclatures for Selections

7.1 List of domains

For obtain the list of domains the Rest API provide the function “Domain List”

```
Method: GET
URL: /api/domains/
Filter by (optional): dom_name (eg. /api/domains/?dom_name=Accidents)
```

JavaScript example:

```
var form = new FormData();
form.append("username", "test");
form.append("password", "test12345");

var settings = {
  "async": true,
  "crossDomain": true,
  "url": "http://uic-stats-pp.uic.org/api/domains/?dom_name=Accidents",
  "method": "GET",
  "headers": {
    "Authorization": "Token tutyu567567gfhgfghj6765713gfhgfh908809",
    "User-Agent": "PostmanRuntime/7.19.0",
    "Accept": "*/*",
    "Cache-Control": "no-cache",
    "Postman-Token": "32473d98-e0eb-4731-b95a-1f293ef412ef,e641d27c-07d4-4ad1-89d2-51a97d89344d",
    "Host": "127.0.0.1:8000",
    "Content-Type": "multipart/form-data; boundary=--------------------------286063985509474678866833",
    "Accept-Encoding": "gzip, deflate",
    "Content-Length": "286",
    "Connection": "keep-alive",
    "cache-control": "no-cache"
  },
  "processData": false,
  "contentType": false,
  "mimeType": "multipart/form-data",
  "data": form
}

$.ajax(settings).done(function (response) {
  console.log(response);
});

```

Also, this function can be executed by Rest API View (see chapter 5)

R example:

```
 #Require the package so you can use it
require("httr")
#install.packages("jsonlite")
```

```
4.
5.  #Require the package so you can use it
6.  require("jsonlite")
7.
8.  require("dplyr")
9.
10.  # Required to run Loghin.R for obtain Token and paset here
11.  Token <- "tutyu567567gfhgfghj6765713gfhgfh908809"
12.  #this directive are used because the SSL certificat on Railisa preproduction
    was expired
13.  httr::set_config(config(ssl_verifypeer = 0L))
14.
15.  #Obtain Domain List
16.  api_url_1 <- "https://uic-stats-pp.uic.org/api/domains"
17.  get_domain <- GET(api_url_1, add_headers(Authorization = paste("Token",
    Token)))
18.  get_domain_text <- content(get_domain, "text", encoding = "UTF-8")
19.  get_domain_json <- fromJSON(get_domain_text, flatten = FALSE)
20.  get_domain_df <- as.data.frame(get_domain_json[4]$results)
21.  message("Domain List")
22.  get_domain_df
```

Python example:

```
1.   def getDomain(token):
2.       url = 'https://uic-stats-pp.uic.org/api/domains/'
3.       headers = {
4.           'Authorization': 'Token ' + token
5.       }
6.       response = requests.request("GET", url, headers=headers,
    verify=ssl.CERT_NONE)
7.       return response.json()
8.
```

7.2 List of filterable variables by domain

For obtain the list of variables the Rest API provide the function “Variable List”

```
Method: GET
URL: /api/ variables/
Filter by (optional): dom_id , var_full_name (eg.
/api/variables/?dom_id=FRET&var_full_name=Revenue-earning freight traffic on the
national territory - Full wagonloads - total number of tonnes)
```

JavaScript example:

```
1. var form = new FormData();
2. form.append("username", "test");
3. form.append("password", "test12345");
4.
5. var settings = {
6.   "async": true,
7.   "crossDomain": true,
8.   "url": "http://uic-stats-
    pp.uic.org/api/variables/?dom_id=FRET&var_full_name=Revenue-
    earning%20freight%20traffic%20on%20the%20national%20territory%20-
    %20Full%20wagonloads%20-%20total%20number%20of%20tonnes",
9.   "method": "GET",
10.    "headers": {
11.      "Authorization": "Token tutyu567567gfhgfghj6765713gfhgfh908809",
12.      "User-Agent": "PostmanRuntime/7.19.0",
13.      "Accept": "*/*",
14.      "Cache-Control": "no-cache",
```

```
15.      "Postman-Token": "97012ec2-4058-4da3-898f-517fa1051e8e,964afece-10e0-402f-
   b53b-22ffe08a6e14",
16.      "Host": "uic-stats-pp.uic.org",
17.      "Content-Type": "multipart/form-data; boundary=--------------------------
   782184182105230076277231",
18.      "Accept-Encoding": "gzip, deflate",
19.      "Content-Length": "286",
20.      "Connection": "keep-alive",
21.      "cache-control": "no-cache"
22.    },
23.    "processData": false,
24.    "contentType": false,
25.    "mimeType": "multipart/form-data",
26.    "data": form
27.  }
28.
29.  $.ajax(settings).done(function (response) {
30.    console.log(response);
31.  });
32.
```

Also, this function can be executed by Rest API View (see chapter 5)

R example:

```
1.  #Obtain Variable List
2. ## set parameter Domain ID. The list of Domain ID can be obtained by
   get_domain_df Eg. ACCID
3.
4. Dom_ID <- ""
5. api_url_2 <- "https://uic-stats-pp.uic.org//api/variables/"
6. call_0 <- paste0(api_url_2, "?", "dom_id", "=", Dom_ID)
7. Items <- GET(call_0,add_headers(Authorization = paste("Token", Token)))
8. Items_text <- content(Items, "text", encoding = "UTF-8")
9. Items_json <- fromJSON(Items_text, flatten = TRUE)
10.
11.  count <- Items_json[1]$count
12.  get_variable_json <- Items_json[4]$results
13.  get_variable_df <- as.data.frame(get_variable_json)
14.  pages <- round(count/50)
15.  for(i in 2:pages){
16.    call_1 <- paste0(api_url_2, "?", "dom_id", "=", Dom_ID, "&", "page", "=", i)
17.    get_variable_2 <- GET(call_1,add_headers(Authorization = paste("Token",
   Token)))
18.    get_variable_2_text <- content(get_variable_2, "text", encoding = "UTF-8")
19.    get_variable_2_json <- fromJSON(get_variable_2_text)
20.    get_variable_2_df <- as.data.frame(get_variable_2_json[4]$results)
21.    get_variable_df <- rbind(get_variable_df, get_variable_2_df)
22.  }
23.  message("Variable List")
24.  get_variable_df
```

Python example:

```
1.  def getVariable(dom_id, token):
2.      url = 'https://uic-stats-pp.uic.org/api/variables/?dom_id=' + dom_id
3.      headers = {
4.          'Authorization': 'Token ' + token
5.      }
6.      results = {}
7.      results['results'] = []
8.      response = requests.request("GET", url, headers=headers,
   verify=ssl.CERT_NONE)
9.      raw = response.json()
```

```
10.
11.      for i in raw['results']:
12.          results['results'].append(i)
13.
14.      pg = int(raw['count'] / 50) + 1
15.      p = 2
16.      while p <= pg:
17.          try:
18.              r = requests.request("GET", url + '&page=' + str(p),
   headers=headers, verify=ssl.CERT_NONE)
19.              raw2 = r.json()
20.
21.              for j in raw2['results']:
22.                  results['results'].append(j)
23.          finally:
24.              p += 1
25.
26.      return results
27.
```

7.3 List of regions

For obtain the list of regions the Rest API provide the function “Region List”

```
Method: GET
URL: /api/regions/
Filter by (optional): rgn_name (eg. /api/regions/?rgn_name=Africa)
```

JavaScript example:

```
1. var form = new FormData();
2. form.append("username", "test");
3. form.append("password", "test12345");
4.
5. var settings = {
6.   "async": true,
7.   "crossDomain": true,
8.   "url": "https://uic-stats-pp.uic.org/api/regions/?rgn_name=Africa",
9.   "method": "GET",
10.    "headers": {
11.      "Authorization": "Token tutyu567567gfhgfghj6765713gfhgfh908809",
12.      "User-Agent": "PostmanRuntime/7.19.0",
13.      "Accept": "*/*",
14.      "Cache-Control": "no-cache",
15.      "Postman-Token": "c1d2c71d-a511-42dc-bf8b-ddda54797c12,c5c5d377-cef8-4a15-
   9a61-1c0400895e05",
16.      "Host": "uic-stats-pp.uic.org ",
17.      "Content-Type": "multipart/form-data; boundary=--------------------------
   418282051346309597066817",
18.      "Accept-Encoding": "gzip, deflate",
19.      "Content-Length": "286",
20.      "Connection": "keep-alive",
21.      "cache-control": "no-cache"
22.    },
23.    "processData": false,
24.    "contentType": false,
25.    "mimeType": "multipart/form-data",
26.    "data": form
27.  }
28.
29.  $.ajax(settings).done(function (response) {
30.    console.log(response);
31.  });
32.
```

Also, this function can be executed by Rest API View (see chapter 5)

R example:

```r
#Obtain Region List
api_url_3 <- "https://uic-stats-pp.uic.org/api/regions"
get_regions <- GET(api_url_3, add_headers(Authorization = paste("Token", Token)))
get_regions_text <- content(get_regions, "text", encoding = "UTF-8")
get_regions_json <- fromJSON(get_regions_text, flatten = FALSE)
get_regions_df <- as.data.frame(get_regions_json[4]$results)
message("Region List")
get_regions_df
```

Python example:

```python
def getRegion(token):
    url = 'https://uic-stats-pp.uic.org/api/regions/'
    headers = {
        'Authorization': 'Token ' + token
    }
    response = requests.request("GET", url, headers=headers, verify=ssl.CERT_NONE)
    return response.json()
```

7.4 List of filterable countries by regions

For obtain the list of countries the Rest API provide the function “Country List”

```
Method: GET
URL: /api/countries/
Filter by (optional): rgn_id (eg. /api/countries/?rgn_id=AF_C)
```

JavaScript example:

```javascript
var form = new FormData();
form.append("username", "test");
form.append("password", "test12345");

var settings = {
  "async": true,
  "crossDomain": true,
  "url": "http://uic-stats-pp.uic.org/api/countries/?rgn_id=AF_C",
  "method": "GET",
  "headers": {
    "Authorization": "Token tutyu567567gfhgfghj6765713gfhgfh908809",
    "User-Agent": "PostmanRuntime/7.19.0",
    "Accept": "*/*",
    "Cache-Control": "no-cache",
    "Postman-Token": "2dbd9986-df03-4459-8efe-aad4121377e3,f31c1fae-a085-4f0d-8aaa-ba3d6e96cce3",
    "Host": "uic-stats-pp.uic.org",
    "Content-Type": "multipart/form-data; boundary=--------------------------267042938833963093941861",
    "Accept-Encoding": "gzip, deflate",
    "Content-Length": "286",
    "Connection": "keep-alive",
    "cache-control": "no-cache"
  },
  "processData": false,
  "contentType": false,
  "mimeType": "multipart/form-data",
```

```
    "data": form
  }

  $.ajax(settings).done(function (response) {
    console.log(response);
  });

```

Also, this function can be executed by Rest API View (see chapter 5)

R example:

```
 #Obtain Country List
# set parameter Region ID. The list of Region ID can be obtained by
get_regions_df Eg. AF_C
Rgn_ID <- ""
api_url_4 <- "https://uic-stats-pp.uic.org//api/countries/"
call_4 <- paste0(api_url_4, "?", "rgn_id", "=", Rgn_ID)
Items4 <- GET(call_4,add_headers(Authorization = paste("Token", Token)))
Items4_text <- content(Items4, "text", encoding = "UTF-8")
Items4_json <- fromJSON(Items4_text, flatten = TRUE)

 count <- Items4_json[1]$count
 get_countries_json <- Items4_json[4]$results
 get_countries_df <- as.data.frame(get_countries_json)
 pages <- round(count/50)
 for(i in 2:pages){
   call_5 <- paste0(api_url_4, "?", "rgn_id", "=", Rgn_ID, "&", "page", "=", i)
   get_countries_2 <- GET(call_5,add_headers(Authorization = paste("Token",
Token)))
   get_countries_2_text <- content(get_countries_2, "text", encoding = "UTF-8")
   get_countries_2_json <- fromJSON(get_countries_2_text)
   get_countries_2_df <- as.data.frame(get_countries_2_json[4]$results)
   get_countries_df <- rbind(get_countries_df, get_countries_2_df)
 }
 message("Countries List")
 get_countries_df
```

Python example:

```
 def getCountry(rgn_id, token):
    url = 'https://uic-stats-pp.uic.org/api/countries/?rgn_id=' + rgn_id
    headers = {
        'Authorization': 'Token ' + token
    }
    results = {}
    results['results'] = []
    response = requests.request("GET", url, headers=headers,
verify=ssl.CERT_NONE)
    raw = response.json()

     for i in raw['results']:
         results['results'].append(i)

     pg = int(raw['count'] / 50) + 1
     p = 2

     while p <= pg:
         try:
             r = requests.request("GET", url + '&page=' + str(p),
headers=headers, verify=ssl.CERT_NONE)
             raw2 = r.json()
             for j in raw2['results']:
                 results['results'].append(j)
         finally:
```

```
            p += 1
    return results
```

7.5 List of filterable company by countries

For obtain the list of companies the Rest API provide the function “Company List”

```
Method: GET
URL: /api/companies/
Filter by (optional): ctry_id, co_cf_code, co_full_name (eg.
/api/companies/?ctry_id=DZ&co_cf_code=SNTF&co_full_name=SNTF)
```

JavaScript example:

```
var form = new FormData();
form.append("username", "test");
form.append("password", "test12345");

var settings = {
  "async": true,
  "crossDomain": true,
  "url": "http://uic-stats-pp.uic.org/api/companies/?ctry_id=DZ&co_cf_code=SNTF&co_full_name=SNTF",
  "method": "GET",
  "headers": {
    "Authorization": "Token tutyu567567gfhgfghj6765713gfhgfh908809",
    "User-Agent": "PostmanRuntime/7.19.0",
    "Accept": "*/*",
    "Cache-Control": "no-cache",
    "Postman-Token": "1a72c877-a5e7-40d8-9687-2fe2e519235e,f19d7c45-5c20-49ee-8ffb-a15461e316cb",
    "Host": "uic-stats-pp.uic.org",
    "Content-Type": "multipart/form-data; boundary=--------------------------204517922753159705986767",
    "Accept-Encoding": "gzip, deflate",
    "Content-Length": "286",
    "Connection": "keep-alive",
    "cache-control": "no-cache"
  },
  "processData": false,
  "contentType": false,
  "mimeType": "multipart/form-data",
  "data": form
}

$.ajax(settings).done(function (response) {
  console.log(response);
});
```

Also, this function can be executed by Rest API View (see chapter 5)

R example:

```
 #Obtain Company List
# set parameter Country ID. The list of Country ID can be obtained by get_countries_df Eg. DE
Ctry_ID <- ""
api_url_6 <- "https://uic-stats-pp.uic.org/api/companies/"
call_6 <- paste0(api_url_6, "?", "ctry_id", "=", Ctry_ID)
Items6 <- GET(call_6,add_headers(Authorization = paste("Token", Token)))
Items6_text <- content(Items6, "text", encoding = "UTF-8")
```

```
Items6_json <- fromJSON(Items6_text, flatten = TRUE)

 count <- Items6_json[1]$count
 get_companies_json <- Items6_json[4]$results
 get_companies_df <- as.data.frame(get_companies_json)
 pages <- round(count/50)
 for(i in 2:pages){
   call_7 <- paste0(api_url_6, "?", "ctry_id", "=", Ctry_ID, "&" ,"page", "=", i)
   get_companies_2 <- GET(call_7,add_headers(Authorization = paste("Token", Token)))
   get_companies_2_text <- content(get_companies_2, "text", encoding = "UTF-8")
   get_companies_2_json <- fromJSON(get_companies_2_text)
   get_companies_2_df <- as.data.frame(get_companies_2_json[4]$results)
   get_companies_df <- rbind(get_companies_df, get_companies_2_df)
 }
 message("Company List")
 get_companies_df

```

Python example:

```
 def getCompany(ctry_id, token):
    url = 'https://uic-stats-pp.uic.org/api/companies/?ctry_id' + ctry_id
    headers = {
        'Authorization': 'Token ' + token
    }
    results = {}
    results['results'] = []
    response = requests.request("GET", url, headers=headers, verify=ssl.CERT_NONE)
    raw = response.json()

     for i in raw['results']:
         results['results'].append(i)

     pg = int(raw['count'] / 50) + 1
     print("start call " + str(pg) + "API pages")
     p = 2

     print("Page 1 loaded")

     while p <= pg:
         print("Page " + str(p) + " loaded")
         try:
             r = requests.request("GET", url + '&page=' + str(p), headers=headers, verify=ssl.CERT_NONE)
             raw2 = r.json()
             for j in raw2['results']:
                 results['results'].append(j)
         finally:
             p += 1
     return results
```

8 API for selections data with dynamic filtering capabilities

This function is representations of “Selection View” by Railisa web.
For obtain selection result the Rest API provide the function “Visualization List”

```
Method: GET
URL: /api/visualisation/
Filter by (optional): companies, countries, max_year, min_year, variables , visibility
(eg.
```

/api/visualisation/?companies=RFF,CFR&countries=RO,FR&max_year=2018&min_year=1995&var_id=1110&visibility=2)

Note:
Variables = it is a composite get parameter represented by list of company of var_id separated by ,
Companies = it is a composite get parameter represented by list of company co_cf_code separated by ,
Countries = it is a composite get parameter represented by list of country ctry_id separated by ,
Visibility = it is level of visibility (1=Public, 2=Public + Member, 3=Member)

JavaScript example:

```
var form = new FormData();
form.append("username", "test");
form.append("password", "test12345");

var settings = {
  "async": true,
  "crossDomain": true,
  "url": "http://uic-stats-pp.uic.org/api/visualisation/?companies=RFF,CFR&countries=RO,FR&max_year=2018&min_year=1995&var_id=1110",
  "method": "GET",
  "headers": {
    "Authorization": "Token tutyu567567gfhgfghj6765713gfhgfh908809",
    "User-Agent": "PostmanRuntime/7.19.0",
    "Accept": "*/*",
    "Cache-Control": "no-cache",
    "Postman-Token": "182c698d-4805-4cfc-950c-74656a654174,6402153b-73ca-426d-80f9-2db5f8db7246",
    "Host": "uic-stats-pp.uic.org",
    "Content-Type": "multipart/form-data; boundary=--------------------------085594795765079419433806",
    "Accept-Encoding": "gzip, deflate",
    "Content-Length": "286",
    "Connection": "keep-alive",
    "cache-control": "no-cache"
  },
  "processData": false,
  "contentType": false,
  "mimeType": "multipart/form-data",
  "data": form
}

$.ajax(settings).done(function (response) {
  console.log(response);
});

```

Also, this function can be executed by Rest API View (see chapter 5)

R example:

```
# Title     : Railisa R Client for Rest API
# Objective : Demo. Haw to consuming Railisa Rest API in R
# Created by: lucian
# Created on: 07/08/2020

#install.packages("httr")

#Require the package so you can use it
require("httr")
 #install.packages("jsonlite")
```

```
11.
12.  #Require the package so you can use it
13.  require("jsonlite")
14.
15.  # Required to run Loghin.R for obtain Token and paset here
16.  Token <- "tutyu567567gfhgfghj6765713gfhgfh908809"
17.  #this directive are used because the SSL certificat on Railisa preproduction
     was expired
18.  httr::set_config(config(ssl_verifypeer = 0L))
19.
20.  ## set parameters
21.  ### Variables (variable ID) Eg. 1110,2306
22.  Var_ID <- ""
23.
24.  ## min_year
25.  Min_year <- "2018"
26.
27.  ## max_year
28.  Max_year <- "2018"
29.
30.  # countries (list of countries ID separaded by , ) Eg. FR,DE
31.  Countries <- "IT"
32.
33.  # companies (list of co_cf_code separaded by , ) Eg. EUROTUNNEL,SNCF,AAE,DB
34.  Companies <- ""
35.
36.  # visibility (level ov visibility) Eg. 1 - only Public, 2 - Mamber and Public,
     3 - only Member
37.  Visibility <- ""
38.
39.  api_url <- "https://uic-stats-pp.uic.org/api/visualisation"
40.  call_0 <- paste0(api_url, "?", "variables", "=", Var_ID, "&", "min_year", "=",
     Min_year, "&", "max_year", "=", Max_year, "&", "countries", "=", Countries, "&",
     "companies", "=", Companies, "&", "visibility", "=", Visibility)
41.  Items <- GET(call_0, add_headers(Authorization = paste("Token", Token)))
42.  Items_text <- content(Items, "text", encoding = "UTF-8")
43.  Items_json <- fromJSON(Items_text, flatten = TRUE)
44.
45.  count <- Items_json[1]$count
46.  pages <- ceiling(count/50)
47.
48.  get_selections_json <- Items_json[4]$results
49.  get_selections_df <- as.data.frame(get_selections_json)
50.  if (pages > 1) {
51.    for(i in 2:pages){
52.      call_1 <- paste0(api_url, "?", "variables", "=", Var_ID, "&", "min_year",
     "=", Min_year, "&", "max_year", "=", Max_year, "&", "countries", "=", Countries,
     "&", "companies", "=", Companies, "&", "visibility", "=", Visibility, "&",
     "page", "=", i)
53.      Items2 <- GET(call_1, add_headers(Authorization = paste("Token", Token)))
54.      Items2_text <- content(Items2, "text", encoding = "UTF-8")
55.      Items2_json <- fromJSON(Items2_text, flatten = TRUE)
56.      get_selections2_json <- Items2_json[4]$results
57.      get_selections2_df <- as.data.frame(get_selections2_json)
58.      get_selections_df <- rbind(get_selections_df, get_selections2_df)
59.    }
60.  }
61.  get_selections_df
62.
```

Python example:

```
1. def getSelection(var_id, min_year, max_year, countries, companies, visibility,
   token):
2.     url = 'https://uic-stats-
   pp.uic.org//api/visualisation/?variables='+var_id+'&min_year='+min_year+'&max_yea
   r='+max_year+'&countries='+ countries +'&companies=' + companies + '&visibility='
   + visibility
```

```
    headers = {
        'Authorization': 'Token ' + token
    }
    results = {}
    results['results'] = []
    response = requests.request("GET", url, headers=headers,
verify=ssl.CERT_NONE)
    raw = response.json()

     for i in raw['results']:
        results['results'].append(i)

     pg = int(raw['count'] / 50) + 1
     p = 2

     while p <= pg:
        try:
            r = requests.request("GET", url + '&page=' + str(p),
headers=headers, verify=ssl.CERT_NONE)
            raw2 = r.json()
            for j in raw2['results']:
                results['results'].append(j)
        finally:
            p += 1
     return results

```

9 API for CSV export based on API for selections data

This function is representations of “Download View” by Railisa web.
For obtain selection result the Rest API provide the function “CSV export of Visualization List”

```
Method: GET
URL: /api/download/
Filter by (optional): companies, countries, max_year, min_year, variables, visibility
(eg.
/api/visualisation/?companies=RFF,CFR&countries=RO,FR&max_year=2018&min_year=1995&var_i
d=1110&visibility=2)
```

Note:
Variables = it is a composite get parameter represented by list of company of var_id separated by ,
Companies = it is a composite get parameter represented by list of company co_cf_code separated by ,
Countries = it is a composite get parameter represented by list of country ctry_id separated by ,
Visibility = it is level of visibility (1=Public, 2=Public + Member, 3=Member)

JavaScript example:

```
var form = new FormData();
form.append("username", "test");
form.append("password", "test12345");

var settings = {
  "async": true,
  "crossDomain": true,
  "url": "http://uic-stats-
pp.uic.org/api/download/?companies=RFF,CFR&countries=RO,FR&max_year=2018&min_year
=1995&var_id=1110",
  "method": "GET",
   "headers": {
```

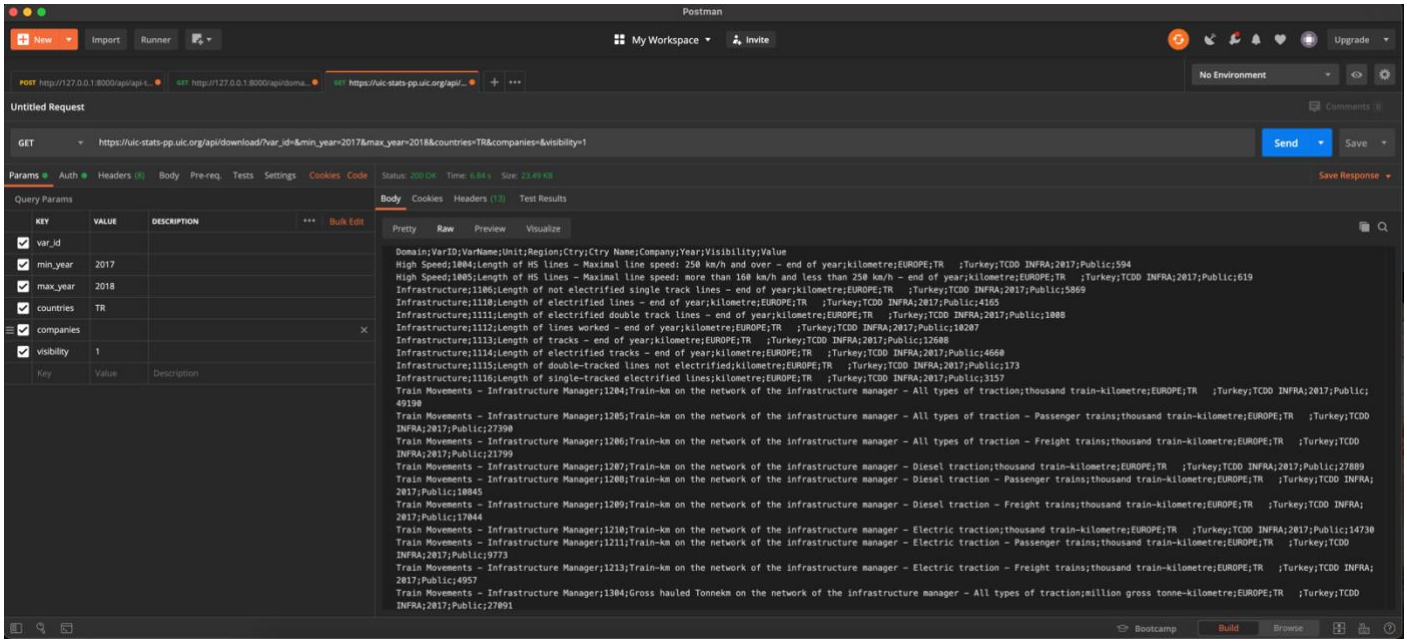
```
      "Authorization": "Token tutyu567567gfhgfghj6765713gfhgfh908809",
      "User-Agent": "PostmanRuntime/7.19.0",
      "Accept": "*/*",
      "Cache-Control": "no-cache",
      "Postman-Token": "182c698d-4805-4cfc-950c-74656a654174,6402153b-73ca-426d-80f9-2db5f8db7246",
      "Host": "uic-stats-pp.uic.org",
      "Content-Type": "multipart/form-data; boundary=--------------------------085594795765079419433806",
      "Accept-Encoding": "gzip, deflate",
      "Content-Length": "286",
      "Connection": "keep-alive",
      "cache-control": "no-cache"
    },
    "processData": false,
    "contentType": false,
    "mimeType": "multipart/form-data",
    "data": form
  }

  $.ajax(settings).done(function (response) {
    console.log(response);
  });


```

Python example:

```
  import requests

url = "https://uic-stats-pp.uic.org/api/download/?variables=&min_year=2017&max_year=2018&countries=TR&companies=&visibility=1"

payload = {}
headers = {
   'Authorization': 'Token tutyu567567gfhgfghj6765713gfhgfh908809'
}

 response = requests.request("GET", url, headers=headers, data = payload)

 print(response.text.encode('utf8'))

```

This function can't be executed by Rest API View because the result is in CSV format, and this result can't be rendered by web browser.

This function can be tested be Postman application or other Test API applications.


Postman
New
Import
Runner
My Workspace
Invite
Upgrade
No Environment
Untitled Request
GET
https://uic-stats-pp.uic.org/api/download/?var_id=&min_year=2017&max_year=2018&countries=TR&companies=&visibility=1
Send
Save
Params
Auth
Headers (8)
Body
Pre-req.
Tests
Settings
Cookies
Code
Status: 200 OK
Time: 6.84 s
Size: 23.49 KB
Save Response
Query Params
KEY
VALUE
DESCRIPTION
Bulk Edit
var_id
min_year
2017
max_year
2018
countries
TR
companies
visibility
1
Key
Value
Description
Body
Cookies
Headers (13)
Test Results
Pretty
Raw
Preview
Visualize
Domain;VarID;VarName;Unit;Region;Ctry;Ctry Name;Company;Year;Visibility;Value
High Speed;1004;Length of HS lines – Maximal line speed: 250 km/h and over – end of year;kilometre;EUROPE;TR ;Turkey;TCDD INFRA;2017;Public;594
High Speed;1005;Length of HS lines – Maximal line speed: more than 160 km/h and less than 250 km/h – end of year;kilometre;EUROPE;TR ;Turkey;TCDD INFRA;2017;Public;619
Infrastructure;1106;Length of not electrified single track lines – end of year;kilometre;EUROPE;TR ;Turkey;TCDD INFRA;2017;Public;5869
Infrastructure;1110;Length of electrified lines – end of year;kilometre;EUROPE;TR ;Turkey;TCDD INFRA;2017;Public;4165
Infrastructure;1111;Length of electrified double track lines – end of year;kilometre;EUROPE;TR ;Turkey;TCDD INFRA;2017;Public;1008
Infrastructure;1112;Length of lines worked – end of year;kilometre;EUROPE;TR ;Turkey;TCDD INFRA;2017;Public;10207
Infrastructure;1113;Length of tracks – end of year;kilometre;EUROPE;TR ;Turkey;TCDD INFRA;2017;Public;12608
Infrastructure;1114;Length of electrified tracks – end of year;kilometre;EUROPE;TR ;Turkey;TCDD INFRA;2017;Public;4660
Infrastructure;1115;Length of double-tracked lines not electrified;kilometre;EUROPE;TR ;Turkey;TCDD INFRA;2017;Public;173
Infrastructure;1116;Length of single-tracked electrified lines;kilometre;EUROPE;TR ;Turkey;TCDD INFRA;2017;Public;3157
Train Movements – Infrastructure Manager;1204;Train-km on the network of the infrastructure manager – All types of traction;thousand train-kilometre;EUROPE;TR ;Turkey;TCDD INFRA;2017;Public;49190
Train Movements – Infrastructure Manager;1205;Train-km on the network of the infrastructure manager – All types of traction – Passenger trains;thousand train-kilometre;EUROPE;TR ;Turkey;TCDD INFRA;2017;Public;27390
Train Movements – Infrastructure Manager;1206;Train-km on the network of the infrastructure manager – All types of traction – Freight trains;thousand train-kilometre;EUROPE;TR ;Turkey;TCDD INFRA;2017;Public;21799
Train Movements – Infrastructure Manager;1207;Train-km on the network of the infrastructure manager – Diesel traction;thousand train-kilometre;EUROPE;TR ;Turkey;TCDD INFRA;2017;Public;27889
Train Movements – Infrastructure Manager;1208;Train-km on the network of the infrastructure manager – Diesel traction – Passenger trains;thousand train-kilometre;EUROPE;TR ;Turkey;TCDD INFRA;2017;Public;10845
Train Movements – Infrastructure Manager;1209;Train-km on the network of the infrastructure manager – Diesel traction – Freight trains;thousand train-kilometre;EUROPE;TR ;Turkey;TCDD INFRA;2017;Public;17044
Train Movements – Infrastructure Manager;1210;Train-km on the network of the infrastructure manager – Electric traction;thousand train-kilometre;EUROPE;TR ;Turkey;TCDD INFRA;2017;Public;14730
Train Movements – Infrastructure Manager;1211;Train-km on the network of the infrastructure manager – Electric traction – Passenger trains;thousand train-kilometre;EUROPE;TR ;Turkey;TCDD INFRA;2017;Public;9773
Train Movements – Infrastructure Manager;1213;Train-km on the network of the infrastructure manager – Electric traction – Freight trains;thousand train-kilometre;EUROPE;TR ;Turkey;TCDD INFRA;2017;Public;4957
Train Movements – Infrastructure Manager;1304;Gross hauled Tonnekm on the network of the infrastructure manager – All types of traction;million gross tonne-kilometre;EUROPE;TR ;Turkey;TCDD INFRA;2017;Public;27091
Bootcamp
Build
Browse