

I14Y: An R package to access data from the Interoperability Platform of Switzerland

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Abstract

I14Y allows to search and download official Swiss metadata from the Interoperability Platform of Switzerland using its public IOP API and Console API in multiple languages: English (“en”), German (“de”), French (“fr”) or Italian (“it”).

Install and load

```
install.packages("I14Y")
library(I14Y)
```

Get concepts and codelists

Search for a concept in a given language (“en”, “de”, “fr” or “it”):

```
i14y_search_concept(search = "noga", language = "en")
```

```
#> # A tibble: 10 × 13
#>   conceptType id          identifier registrationStatus validFrom
#>   <chr>      <chr>      <chr>      <chr>      <chr>
#> 1 CodeList  08d94604... DV_NOGA_C... PreferredStandard 2007-12-~
#> 2 CodeList  08d94604... DV_NOGA_D... PreferredStandard 2007-12-~
#> 3 CodeList  08d9f6dd... DV_NOGA_E... Recorded        2007-12-~
#> 4 CodeList  08d94604... DV_NOGA_G... PreferredStandard 2007-12-~
#> 5 CodeList  08d94604... DV_NOGA_O... Recorded        2007-12-~
#> # i 6 more variables: agencyName.cultureCode <chr>, agencyName.text,
#> #   description.cultureCode <chr>, description.text <chr>,
#> #   name.cultureCode <chr>, name.text <chr>
```

You can also get a concept metadata using `i14_get_concept()`:

```
concept_list <- i14y_get_concept(
  id = "08d94604-e058-62a2-aa25-53f84b974201"
)
```

Search and get datasets

Search in the public catalog for datasets, data services or public services:

```
i14y_search_catalog()
```

```
#> # A tibble: 140 × 13
#>   formats identifier registrationStatus themes type accessRights...1
#>   <list>   <chr>      <chr>      <list> <chr> <chr>
#> 1 <chr [0]> 0aaed69d-15... Recorded    <df> Data... de
#> 2 <chr [0]> 15d720d4-dc... Recorded    <df> Data... de
#> 3 <chr [0]> 14e60ad3-1c... Recorded    <df> Data... de
#> 4 <chr [0]> 1f975f0e-68... Recorded    <df> Data... de
#> 5 <chr [0]> 08b7a45f-cl... Recorded    <df> Data... de
#> # i 135 more rows
#> # i abbreviated name: 'accessRights.cultureCode
#> # i 7 more variables: accessRights.text <chr>, description.cultureCode,
#> #   description.text <chr>, publisher.cultureCode <chr>, publisher.text,
#> #   title.cultureCode <chr>, title.text <chr>
```

Get a nomenclature dataset level with `i14y_get_nomenclature_level()`.

```
i14y_get_nomenclature_level(
  identifier = "HCL_NOGA",
  level = 2,
  language = "de"
)
```

Similarly you can access multi-levels nomenclature data:

```
i14y_get_nomenclature_level_multiple(
  identifier = "HCL_NOGA",
  levelFrom = 1,
  levelTo = 2,
  language = "de"
)
```

Data structure

Search for data structure, for example for a SpiGes dataset:

```
i14y_search_catalog(query = "SpiGes")
```

```
#> # A tibble: 15 × 13
#>   formats identifier registrationStatus themes type accessRights...1
#>   <list>   <chr>      <chr>      <list> <chr> <chr>
#> 1 <list [0]> SpiGes_Erh... Recorded    <df> Data... de
#> 2 <list [0]> SpiGes_Erh... Recorded    <df> Data... de
#> 3 <list [0]> SpiGes_Erh... Recorded    <df> Data... de
#> 4 <list [0]> SpiGes_Erh... Recorded    <df> Data... de
#> 5 <list [0]> SpiGes_Erh... Recorded    <df> Data... de
#> # i 10 more rows
#> # i abbreviated name: 'accessRights.cultureCode
#> # i 7 more variables: accessRights.text <chr>, description.cultureCode,
#> #   description.text <chr>, publisher.cultureCode <chr>, publisher.text,
#> #   title.cultureCode <chr>, title.text <chr>
```

You can get its data structure with `i14y_get_data_structure()`:

```
i14y_get_data_structure(identifier = "SpiGes_Erhebung_Administratives")
```

Search and download I14Y data in multiple languages with 1 line of code

Access the full documentation: www.felixluginbuhl.com/I14Y

Let’s get in touch:

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A concrete example

When using an official Swiss dataset, you can use I14Y to get translations or additional information for a given category.

Let’s download the monthly income by gender and profession in 2022 using the BFS R package.

```
install.packages("BFS")
library(BFS)

income_by_job_and_gender_meta <- BFS::bfs_get_metadata(
  number_bfs = "px-x-0304010000_201"
)

income_by_job_and_gender <- BFS::bfs_get_data(
  number_bfs = "px-x-0304010000_201",
  language = "de",
  query = list(
    Jahr = "2022",
    Geschlecht = c("1", "2"),
    Wirtschaftsabteilung = income_by_job_and_gender_meta$values[[3]],
    'Zentralwert und andere Perzentile' = "1"
  )
)

income_by_job_and_gender
```

```
#> # A tibble: 164 × 5
#>   Jahr Wirtschaftsabteilung Geschlecht Zentralwert...1
#>   <chr> <chr>                <chr>      <chr>
#> 1 2022 Wirtschaftsabteilung - Total Frauen Zentralwert
#> 2 2022 Wirtschaftsabteilung - Total Männer Zentralwert
#> 3 2022 05-43 Sektor 2: Produktion Frauen Zentralwert
#> 4 2022 05-43 Sektor 2: Produktion Männer Zentralwert
#> 5 2022 > 8 Gewinnung von Steinen und Erden,... Frauen Zentralwert
#> 6 2022 > 8 Gewinnung von Steinen und Erden,... Männer Zentralwert
#> 7 2022 > 9 Erbringung von Dienstleistungen ... Frauen Zentralwert
#> 8 2022 > 9 Erbringung von Dienstleistungen ... Männer Zentralwert
#> 9 2022 > 10 Herstellung von Nahrungs- und F... Frauen Zentralwert
#> 10 2022 > 10 Herstellung von Nahrungs- und F... Männer Zentralwert
#> # i 154 more rows
#> # i abbreviated name: 'Zentralwert und andere Perzentile'
#> # i 1 more variable: 'Monatlicher Brutto Lohn' <dbl>
```

Using I14Y, you can get the English, French or Italian translation of the German NOGA division categories (with a bit of extra data transformations):

```
library(dplyr)
library(stringr)
library(readr)

noga_division <- i14y_get_codelist(
  id = "08d94604-e058-62a2-aa25-53f84b974201" # for DV_NOGA_DIVISION
) |>
mutate(Code = as.numeric(Code))

income_by_job_and_gender |>
filter(!str_detect(Wirtschaftsabteilung, "Sektor")) |> # remove sectors
mutate(Code = parse_number(Wirtschaftsabteilung)) |> # extract code
left_join(noga_division, by = "Code") |>
select(Wirtschaftsabteilung, Name_en, Name_fr, Name_it)
```

```
#> # A tibble: 160 × 4
#>   Wirtschaftsabteilung Name_en Name_fr
#>   <chr>                <chr>   <chr>
#> 1 Wirtschaftsabteilung - Total <NA>   <NA>
#> 2 Wirtschaftsabteilung - Total <NA>   <NA>
#> 3 > 8 Gewinnung von Steinen und Erden, sonstiger Bergb... Other ... Autres...
#> 4 > 8 Gewinnung von Steinen und Erden, sonstiger Bergb... Other ... Autres...
#> 5 > 9 Erbringung von Dienstleistungen für den Bergbau ... Mining... Servic...
#> 6 > 9 Erbringung von Dienstleistungen für den Bergbau ... Mining... Servic...
#> 7 > 10 Herstellung von Nahrungs- und Futtermitteln Manufa... Indust...
#> 8 > 10 Herstellung von Nahrungs- und Futtermitteln Manufa... Indust...
#> 9 > 11 Getränkeherstellung Manufa... Fabric...
#> 10 > 11 Getränkeherstellung Manufa... Fabric...
#> # i 150 more rows
```

The SwissStatsR universe

The I14Y R package is listed in the SwissStatsR Universe.

On the platform, you can find other R packages related to Swiss statistics such as:

- BFS: Search and Get Data from the Swiss Federal Statistical Office
- dcatapchr: Create DCAT-AP CH Metadata Files
- distr: Estimate and Manage Empirical Distributions
- eneRgyVD: Municipal statistics for climate-related policies in Canton Vaud
- ghactionsOGD: Easy GitHub Actions workflows for data-retrieving processes
- impexpcsv: Import Various csv Files and Export in One csv file
- noga: Recode according to NOGA 2008
- propop: Project Swiss Population Growth using the Cohort Component Method
- seasonal: R Interface to X-13-ARIMA-SEATS
- sg tourism: St.Gallen Tourism Dashboard
- SpiGesXML: Extract data from SpiGes XML files
- zuericolors: Statistik Stadt Zuerich Colors
- zueriplots: Create ggplots with styling according to the city of Zurich
- zueritheme: ggplot theme to conform to the design of the city of Zurich
- zueriverse: All information about zueriverse packages in one place

SwissstatsR is the collaboration platform of the R working group within CORSTAT/KORSTAT, the Swiss Conference of regional statistical offices. The group comprises employees of 16 statistical offices of Switzerland. It was initiated by the Statistical Offices of Canton of St.Gallen and Canton of Zürich.

The SwissStatsR platform is accessible here: <https://swissstatsr.org/>