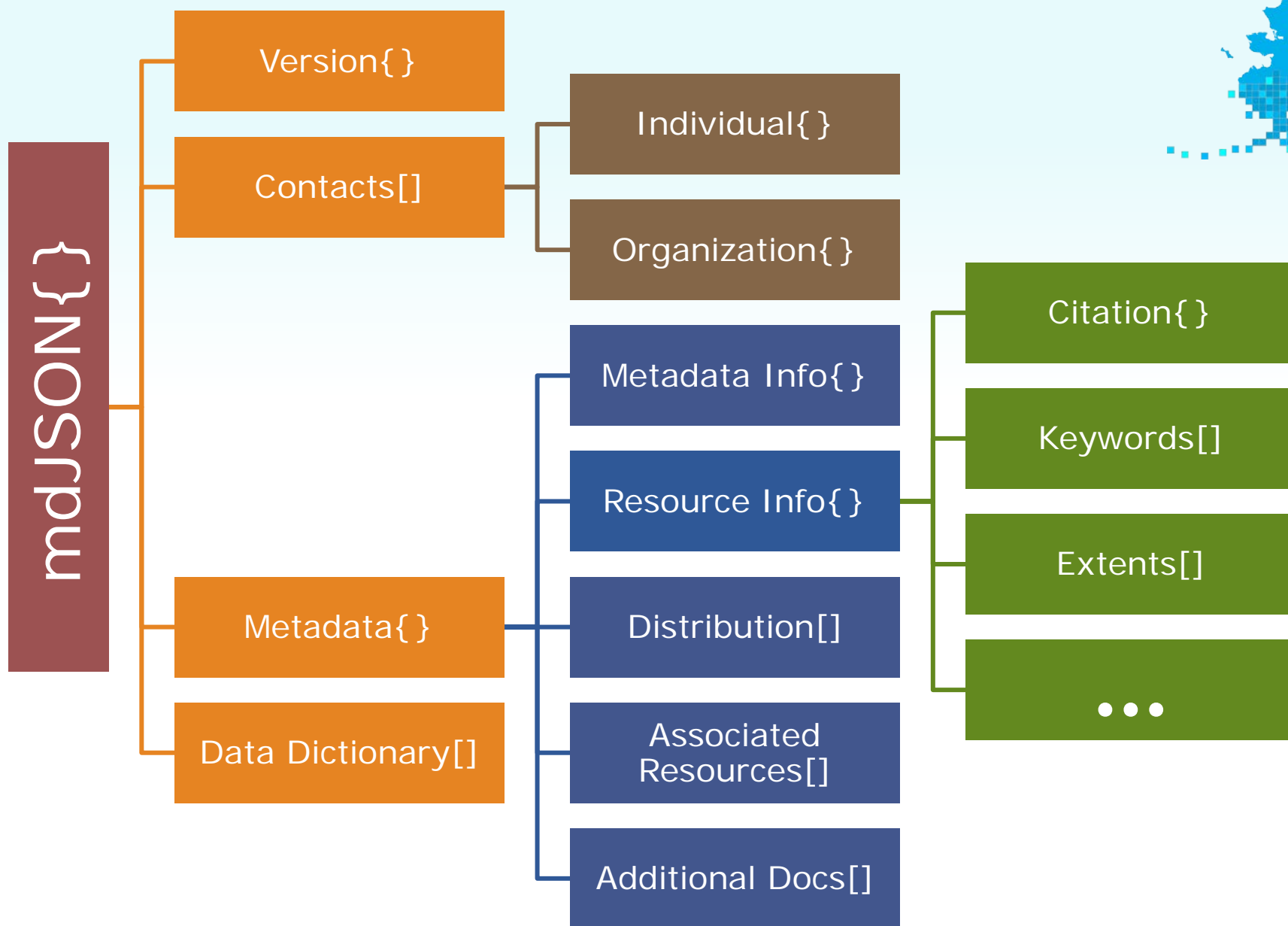


# ISO Developer's Toolkit - mdJSON & mdTools

2015 CDI Workshop

May 11, 2015

Josh Bradley, Arctic LCC



# Contacts



```
{
  "version": {
    "name": "mdJson",
    "version": "1.0.0"
  },
  "contact": [
    {
      "contactId": "1",
      "organizationName": "US Geological Survey - Alaska Science Center"
    }
  ],
  "metadata": {
    "resourceInfo": {
      "resourceType": "project",
      "citation": {
        "title": "Real-Time Permafrost and Climate Monitoring Network - Arctic Alaska",
        "date": [
          {
            "date": "2012-12-21",
            "dateType": "revision"
          }
        ]
      }
    }
  },
  "pointOfContact": [
    {
      "contactId": "1",
      "role": "pointOfContact"
    }
  ],
}
```

[ing.a-long-term-permafrost.m](http://ing.a-long-term-permafrost.m)

# Developing with mdJSON



What's needed:

- Understanding of JSON structure and syntax
- Basic knowledge of JSON Schema specification
- Ability to use mdJSON-schemas to validate

```
{
  "id": "schema.json#",
  "$schema": "http://json-schema.org/draft-04/schema#",
  "description": "schema for ADIWg JSON metadata",
  "type": "object",
  "required": ["version", "contact", "metadata"],
  "properties": {
    "version": {
      "name": {
        "type": "string"
      },
      "version": {
        "type": "string",
        "pattern": "[0-9]\\.[0-9]\\.[0-9]"
      }
    },
    "contact": {
      "$ref": "schema/contact.json"
    },
    "metadata": {
      "$ref": "schema/metadata.json"
    }
  },
  "definitions": {
    "url": {
      "type": "string",
      "pattern": "(https?|ftp)://\\w+(-\\w+)?(\\.\\w+\\/?)?(\\w+\\.\\w+)(\\w+\\.\\w+)?"
    },
    "uri": {
      "type": "string",
      "pattern": "((?:<|>)([A-Za-z][A-Za-z0-9\\+\\.\\-]*:(?:[A-Za-z0-9\\+\\.\\-~:/\\?#\\[\\]@!$%&'()*~=-_.,:;<br>\"'`{}|!@$%^&*()~=-_.,:;</p></div>"
```

- Complete structural validation of JSON
- Latest IETF draft: version 4
- Validation engines available in many languages, see <http://json-schema.org/>

# JSON Schema Keywords: \$ref



- The value of \$ref is a JSON Pointer.
- \$ref is replaced with the value it points to.
- JSON Pointer identifies a specific value within a JSON document.
- Can point to location in another file
- {"\$ref": "doc.json#/location/in/doc"}

<http://spacetelescope.github.io/understanding-json-schema/>

# JSON Schema Keywords



- allOf: Must be valid against all of the subschemas
- anyOf: Must be valid against any of the subschemas
- oneOf: Must be valid against exactly one of the subschemas

<http://spacetelescope.github.io/understanding-json-schema/>

# mdJSON-schemas



- Can be used independent of mdTranslator for validation
- Include descriptions and pointers to examples
- Mapping to other standards(19115-2, FGDC)

<https://github.com/adiwg/mdjson-schemas>





- An interface for ADIwg metadata tools
- The purpose of these tools is to assist with the production of metadata
- For now, primarily useful for learning and development



d3.js



[www.adiwg.org/mdTools](http://www.adiwg.org/mdTools)

# Questions?



[github.com/adiwg/mdWorkshop](https://github.com/adiwg/mdWorkshop)

[www.adiwg.org/mdTools](http://www.adiwg.org/mdTools)

[mdtranslator.adiwg.org](http://mdtranslator.adiwg.org)

[mdbook.adiwg.org](http://mdbook.adiwg.org)

# mdJSON Example

# mdJSON Example



- Only write blocks for which content exists
- Must provide mandatory elements
- Must be valid syntax
- Must use ISO code lists for domain values
- Describe contacts once, use many times
- [mdJSON Example](#)





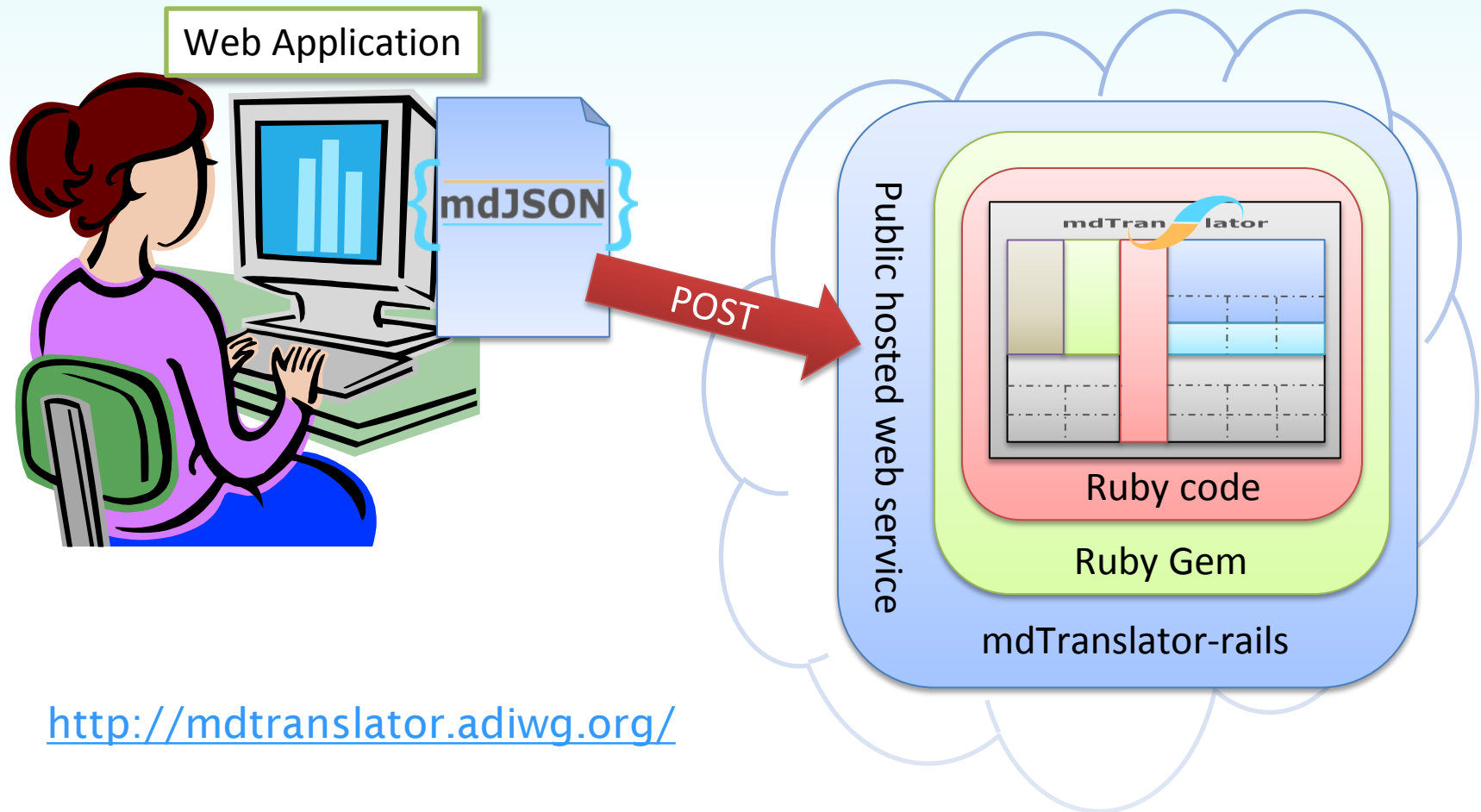
# ISO Developer's Toolkit - Using mdTranslator API

2015 CDI Workshop

May 11, 2015

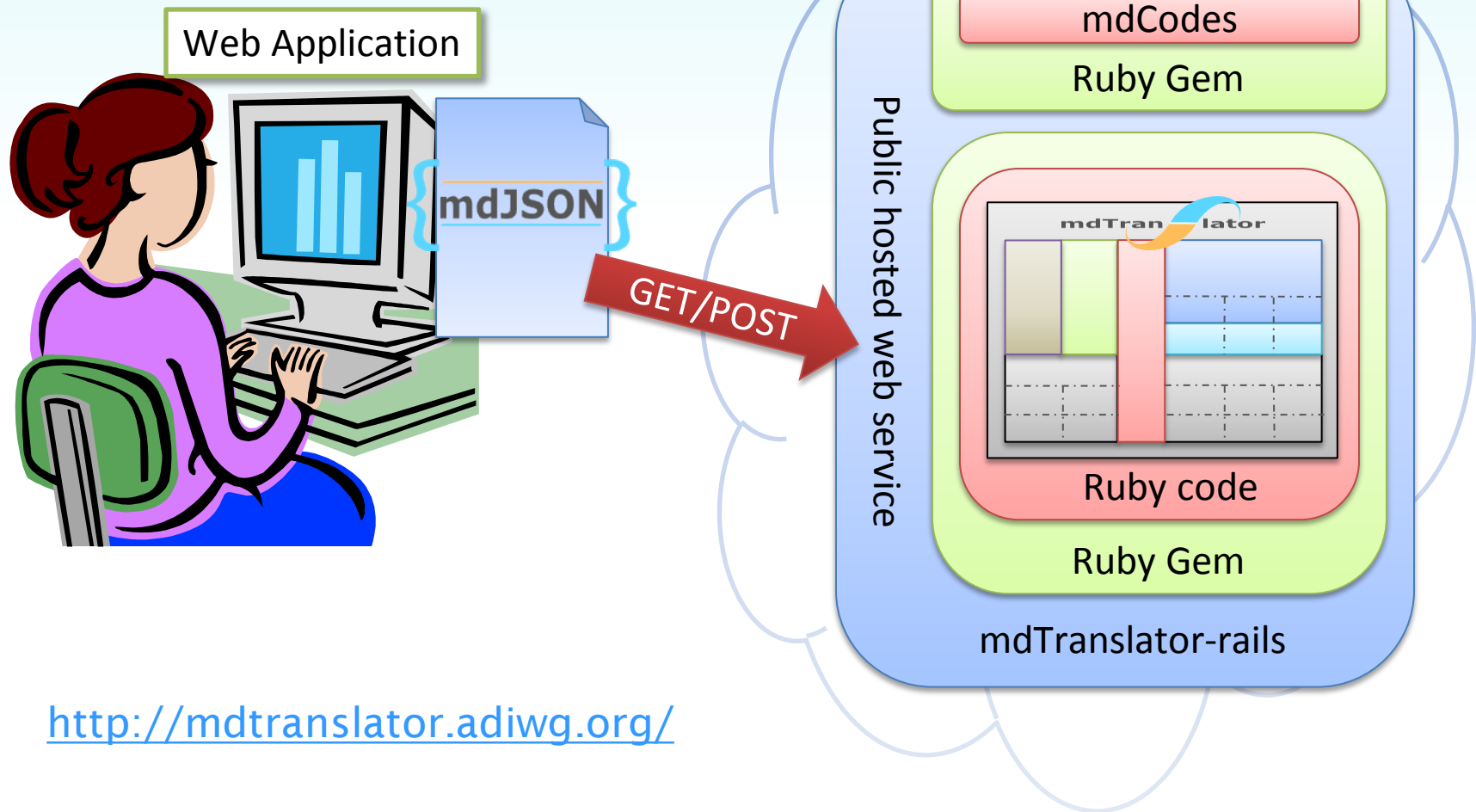
Stan Smith, USGS

# mdTranslator as web service



<http://mdtranslator.adiwg.org/>

# mdTranslator as web service



<http://mdtranslator.adiwg.org/>



# mdTranslator 'Welcome'



- Welcome page - <http://mdtranslator.adiwg.org/>
  - Root for mdTranslator API
- Overview
- Background
  - Including description of the six ISO Metadata Developer's Toolkit components
- Links
  - mdTranslator resources
    - API <.../api/v1>
    - Readers <.../api/readers>
    - Writers <.../api/writers>
  - Related external resources
    - mdTranslator Home page <http://www.adiwg.org/mdTranslator/>
    - mdTools <http://www.adiwg.org/mdTools/>
    - GitHub repository <https://github.com/adiwg>
    - RubyGems libraries <https://rubygems.org/>





# mdTranslator API



- API V1 documentation [.../api/v1/api](#) or [.../api/v1](#)
  - API is versioned to support legacy versions of API
  - API only supports GET and POST verbs
  - PUTs (updates) and DELETES not accepted
  - Cross domain requests handled by CORS (Cross-Origin Resource Sharing)
  - **Documentation and Lists**
    - GET
      - Informational web pages
      - API version 1 options [.../api/v1/options](#)
      - Interacting with codelists
  - **Translator method**
    - GET
      - Limited application due to URI size limits (2K)
    - POST
      - mdTranslator parameters [.../api/v1/demo](#)



# mdCodes



- mdCodes is also a GitHub repo and RubyGem
- Designed for metadata content editors (mdEditor) to load codelist values
- Contains all ISO codelists needed by mdTranslator
- Current with 19115-2, 19115-1, including some ADIwg extensions
- Each codelist is maintained in a separate YAML file
  - “Yet Another Markup Language” or “YAML Ain’t Markup Language”
  - Suited for text editing structured data
  - Supported in Ruby, Python, Perl, grep
- Only static codelists are supported at this time
- We might extend to provide a consistent API for externally maintained hierarchical code lists such as:
  - GCMD Global Change Master Directory of Earth Science Keywords (NASA), ITIS, Several candidates from NOAA

# mdCodes YAML file



- Static codelist example

```
1  ---
2  # mdJson codelists
3  # base codelist for ISO 19115-2, 19115-1
4  # extended for ADIwg
5
6  codelistType: "staticList"
7  codelistName: "iso_restriction"
8  source: "ISO"
9  sourceName: "MD_RestrictionCode"
10 extensible: true
11 description: "limitation(s) placed upon the access or use of the data)"
12 codelist:
13   - {code: "001", codeName: copyright, description: "exclusive right to the publication, production, or sale of t
14   - {code: "002", codeName: patent, description: "government has granted exclusive right to make, sell, use or li
15   - {code: "003", codeName: patentPending, description: "produced or sold information awaiting a patent"}
16   - {code: "004", codeName: trademark, description: "a name, symbol, or other device identifying a product, offic
17   - {code: "005", codeName: license, description: "formal permission to do something"}
18   - {code: "006", codeName: intellectualPropertyRights, description: "rights to financial benefit from and contr
27   - {code: "015", codeName: confidential, description: "not available to the public. NOTE Contains information th
28   - {code: "016", codeName: sensitiveButUnclassified, description: "although unclassified, requires strict contro
29   - {code: "017", codeName: in-confidence, description: "with trust"}
30   - {code: "adiwg001", codeName: threatenedOrEndangered, description: "information could risk threatened or endan
31   - {code: "adiwg002", codeName: traditionalKnowledge, description: "information protected by American Indian or
32   - {code: "adiwg003", codeName: personallyIdentifiableInformation, description: "information that can be used to
```

# mdCodes API



- .../api/codelists – use chrome w/ JSON formatter plugin
  - All codelists and values <.../api/codelists>
  - All codelists and values <.../api/codelists?format=json>
  - ISO CT\_CodelistCatalogue <.../api/codelists?format=xml>
  - All codes with definitions <.../api/codelists?definitions=true>
  - Add a JSONp wrapper <.../api/codelists?callback=myCall>
  - Single codelist [.../api/codelists/iso\\_restriction](.../api/codelists/iso_restriction)
  - Single codelist with definitions [.../api/codelists/iso\\_mediumName?definitions=true](.../api/codelists/iso_mediumName?definitions=true)

# Questions?



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