

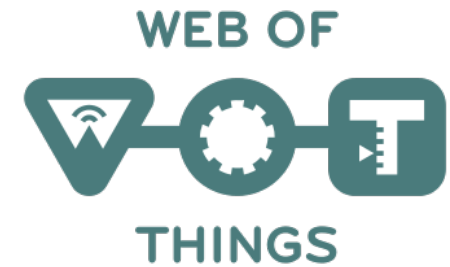
W3C WoT IG

eCl@ss in  
W3C / WoT / TD



VF2F 2020

Sebastian Kaebisch

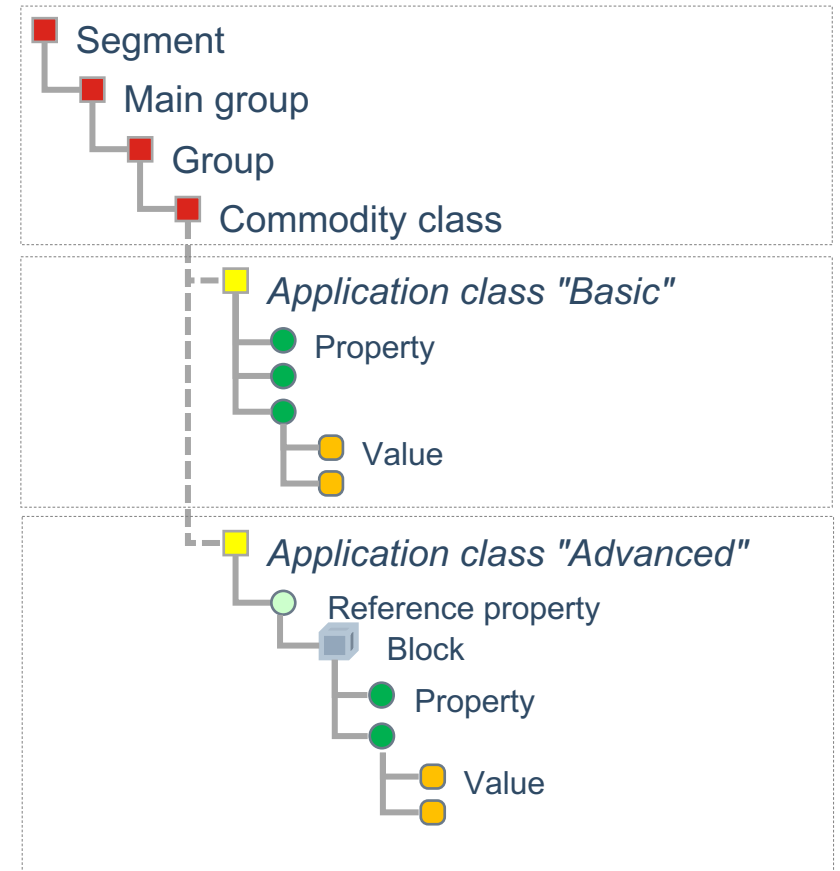


## Basics about eCl@ss

- › eCl@ss is a hierarchical standard for master data to classify and describe products and services
  - › Classification tree over four levels
  - › Properties at 4th level added
  - › Values added to properties
  - › Keywords at all levels

→ Semantic interoperability

Website: <https://www.eclass.eu/en/index.html>



# Example

Multi language support

Version: **11.0 (BASIC)**      Search in: **Classification** for: Search for ... **Search**

- eCl@ss Version 11.0 (en)**
- 13 Development (Service)
  - 14 Logistics (Service)
  - 15 Maintenance (Service)
  - 16 Food, beverage, tobacco
  - 17 Machine, device (for special applications)
  - 18 Equipment f. mining, metallurgical plant, rolling mill a. foundry
  - 19 Information, communication and media technology
  - 20 Packing material
  - 21 Plant equipment, tool**
    - 21-01 Tool
      - 21-02 Gripping tool, workpiece holder 
      - 21-04 Hand tool
        - 21-05 Electric tool**
          - 21-05-01 Drill (electr., hand-operated)
          - 21-05-03 Rock drilling hammer (electr.)
          - 21-05-05 Milling cutter (electr.)
          - 21-05-08 Screwdriver (electr.)**
            - 21-05-08-02 Screwdriver (high frequency) 
            - 21-05-08-04 Rotational screwdriver (electric)**
            - 21-05-08-05 Hammer screwdriver (electric)
            - 21-05-08-06 Magazine screwdriver (electric)
            - 21-05-08-90 Screwdriver (electric, unspecified)
            - 21-05-08-91 Screwdriver (electr., parts) 
            - 21-05-08-92 Screwdriver (electr., accessories)
          - 21-05-09 Shears (electr.)
          - 21-05-11 Saw (electr.)
          - 21-05-13 Grinder (electr.)
          - 21-05-15 Hot air ventilator, hot air gun
          - 21-05-17 Electric power generator
          - 21-05-18 Cutter (rechargeable)
          - 21-05-19 Hammer drill (rechargeable)

Classifications

- 0173-1#02-AAD931#005 - customs tariff number (TARIC)
- 0173-1#02-AAY812#001 - GLN of manufacturer
- 0173-1#02-AAY811#001 - URI of the product
- 0173-1#02-AAO742#002 - Brand
- 0173-1#02-AAU731#001 - Manufacturer product family
- 0173-1#02-AAO677#002 - Manufacturer name
- 0173-1#02-AAU734#001 - Manufacturer product description
- 0173-1#02-AAU732#001 - Manufacturer product root
- 0173-1#02-AAO676#003 - product article number of manufacturer
- 0173-1#02-AAI027#005 - size of tool insertion
- 0173-1#02-AAO057#002 - Product type
- 0173-1#02-AAO663#003 - GTIN
- 0173-1#02-AAI037#004 - max. idle speed (1st gear)
- 0173-1#02-BAA020#009 - height
- 0173-1#02-BAF016#006 - width
- 0173-1#02-AAW338#001 - Manufacturer product designation
- 0173-1#02-AAU733#001** - Manufacturer product order suffix
- 0173-1#02-AAM551#002 - Supplier product designation
- 0173-1#02-BAD007#005 - Amperage
- 0173-1#02-AAY813#001 - GLN of supplier
- 0173-1#02-AAI040#004 - min. idle speed (2nd gear)
- 0173-1#02-AAB713#006 - Weight
- 0173-1#02-AAD934#005 - min. frequency
- 0173-1#02-AAJ032#002 - min. torque setting
- 0173-1#02-BAC955#007 - Voltage

**Exemplary representation**



**Weidmüller** 

Properties

# Multi Language Support (up to 21 languages)

Search in eCI@ss

English Classification class

Refresh Collapse all

**General** «

Search in eCI@ss

**Info** »

**Login** «

User name:

Password:

Login

[Register new user](#) | [Forgot your password?](#)

- Bulgarian ent (Service)
- Chinese Service)
- Czech ice (Service)
- Czech erage, tobacco
- Dutch device (for special applications)
- English t f. mining, metallurgical plant, rolling mill a. foundry
- English n, communication and media technology
- French aterial
- French pment, tool
- German on technology
- Hungarian lement, fixing, mounting
- Italian duct, facility and technic, papeterie
- Italian ervice
- Japanese xtraction product, secondary raw material and residue
- Korean ngineering, automation, process control engineering
- Korean mplete vehicle)
- Polish nomics, Home technology
- Portuguese upply, additive, cleaning agent
- Romanian y material, Laboratory technology
- Russian n (complete)
- Slovak evice
- Slovak ed product
- Spanish apparatus
- Swedish iping
- Swedish Chemical
- Taiwanese hemical
- Thai nal safety, accident prevention
- Turkish gnostic

44 Automotive engineering, vehicle component

45 Human and veterinary drug, pesticide as well as active ingredient

## Goal of the Joint WG

› Goal of this group:

Enable implementers to use eCl@ss in Thing Description (TD)

→ Integrate eCl@ss in the TD

TD is based on a JSON-LD

→ JSON-LD requires an RDF/OWL-Representation of an information set to link to

→ RDF/OWL-Representation of eCl@ss

## Planned Example Usage of eCl@ss Definitions in TDs

```
{
  "@context": [
    "https://www.w3.org/2019/wot/td/v1",
    {"ec-new": "https://www.eclasscontent.com/2020/rdf/language/en/v1"}
  ],
  "@type": [
    "Thing",
    "ec-new:Motion_Control"
  ],
  "id": "urn:dev:ops:12473-plc-d2251310",
  "title": "SimotionP320_4S",
  "description": "PLC controller",
  "securityDefinitions": {"basic_sc": {
    "scheme": "basic",
    "in": "header"
  }},
  "security": ["basic_sc"],
  "ec-new:Manufacture_Name": "PLC Company",
  "ec-new:Product_Name": "PLC P220-a E",
  "ec-new:Article_Number": "7BU3140-4ES65-2BG0",
  ...
}
```

# Summary

- Two weekly calls
  - new members are welcome
- Current members from eCl@ss Office, Siemens, Schneider Electric, Paradine, Pepperl+Fuchs and morphe\*
- F2F meeting Feb 2020 in Cologne (Germany)
- Currently working on eCl@ss to OWL transformation
  - Make some design decision such as about polymorphism, cardinality, and recursive structure of eCl@ss
- Next steps:
  - Design a first full eCl@ss OWL prototype
  - Evaluate / Test approach in one of the next WoT PlugFests
  - Start to design context files for JSON-LD