TCCS - Data Model_11_MAP

1 Table of Contents

2 Package "Map"

2.1 Package Header

SPT2TS-124910 - Package header

```
{
    "$schema": "ERJU meta-model.json",
    "isDefinedBy": "http://ERJU/datamodel/0.4/map",
    "name": "Map",
    "containerStruct": "MapSet",
    "prefix": "map",
    "intId": 7,
    "version": "1.0",
    "info": "Data model to build map",
    "enums": [],    "structs": []
}
```

2.2 Map

SPT2TS-124911 - A map is considered a kind of projection of real-world elements in 2D/3D space. As there are many possible projections, adding special coordinates as part of the specification of real-world objects is not reasonable. Contratry, the maps are constructed by the specification of coordinates in a special coordinate system. Most geo-coordinate systems are specified by the European Petroleum Survey Group Geodesy (EPSG), which assigned unique 4-5 digits-key-numbers to all possible geo-coordinate systems. Several MapArea objects having the same epsg-code represent one map. As the EPSG-code starts at 1024, the value '1' can be assigned to monitor coordinates.

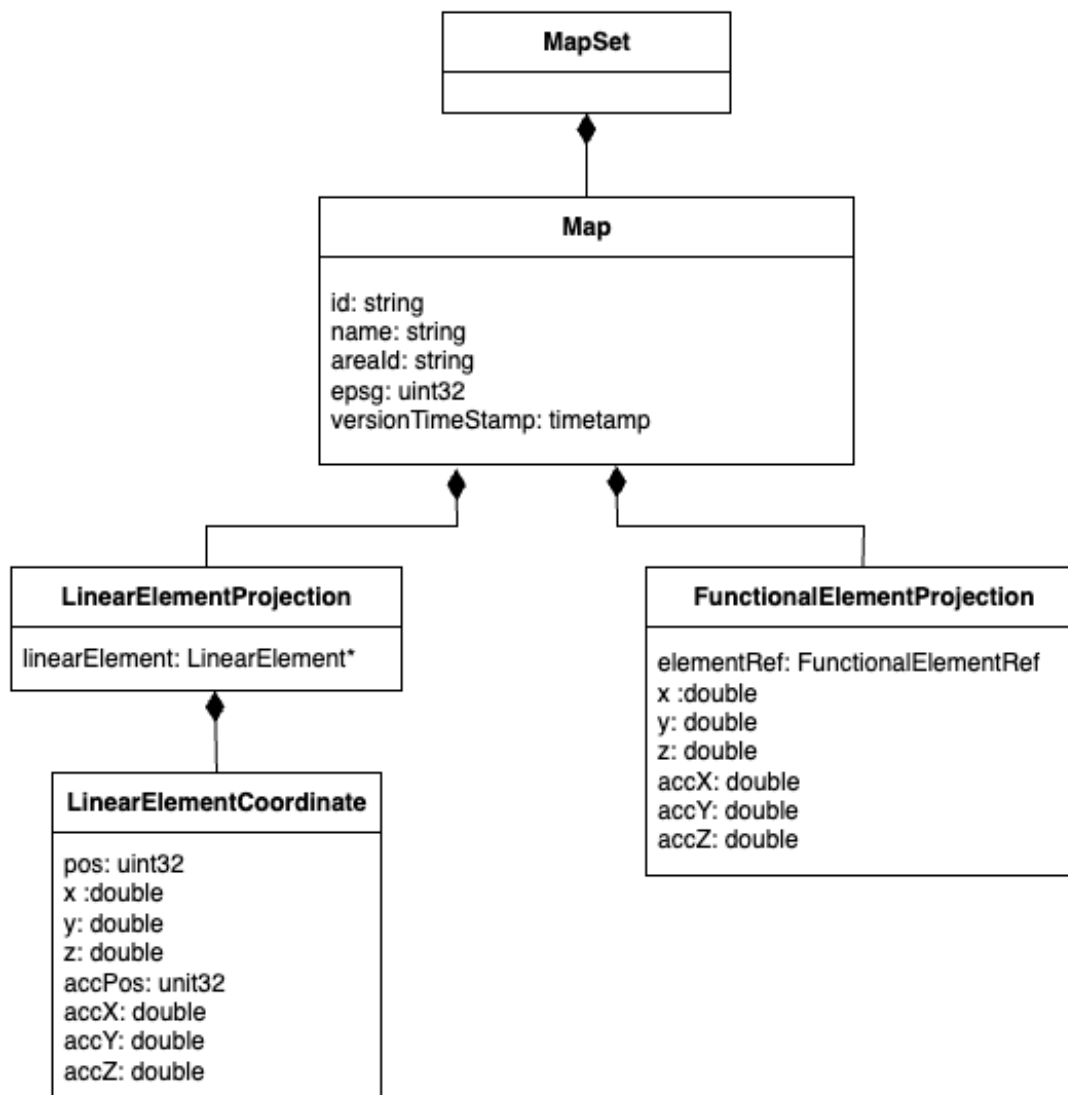Different functional elements like Marker boards, Points, Balises, etc. can have projections on the map.

Figure 1 Class Diagram for Map definition

[⬈ Open]

SPT2TS-63836 - Map

{
  "structs": [
    {
      "name": "Map",
      "info": "Defines Map for an area",
      "attrs": [
        {"intId": 1, "name": "id", "dataType": "string", "key": "global", "info": "Identity of the object; used for referencing"},

```json
    {"intId": 2, "name": "name", "dataType": "string", "info": "User-friendly name, only if different from id", "multiplicity": "0..1"},
    {"intId": 3, "name": "versionTimestamp", "dataType": "timestamp", "info": "Defines the version information which is valid since timestamp"},
    {"intId": 4, "name": "areaId", "dataType": "string", "info": "Defines the areaIds for a Map. There could be several maps representing one area"},
    {"intId": 5, "name": "epsg", "dataType": "uint32", "info": "Defines the applicable EPSG code for the map area. Use 1 for monitor coordinates"},
    {"intId": 6, "name": "linearElementProjections", "composition": "LinearElementProjection", "ordered": "byKey", "multiplicity": "*", "ordered": "byKey", "info": "Defines container for projections of linearElements on same mapping system"},
    {"intId": 7, "name": "functionalElements", "composition": "FunctionalElementProjection", "multiplicity": "*", "info": "Defines a container for a reference to a functional element of the infrastructure"}
    ]
  }]
}
```

SPT2TS-125485 - LinearElementProjection (TrackEdgeProjection)

```json
{
  "structs": [
  {
    "name": "LinearElementProjection",
    "attrs": [
      {"intId": 1, "name": "linearElement", "reference": "infra.LinearElement"},
      {"intId": 2, "name": "coordinates", "composition": "LinearElementCoordinate", "multiplicity": "2..*", "ordered": "byIndex", "info": "Defines a sequence of coordinates representing a mapping of a linear element"}
    ]
  },
  {
    "name": "LinearElementCoordinate",
    "attrs": [
      {"intId": 1, "name": "pos", "dataType": "uint32", "unit": "m", "exp": -3, "info": "Defines position
```

on the associated LinearElement"},

    {"intId": 2, "name": "x", "dataType": "double", "info": "Defines the x coordiante value, mapping to each EPSG-code"},

    {"intId": 3, "name": "y", "dataType": "double", "info": "Defines the y coordiante value, mapping to each EPSG-code"},

    {"intId": 4, "name": "z", "dataType": "double", "info": "Defines the z coordiante value, mapping to each EPSG-code"},

    {"intId": 5, "name": "accPos", "dataType": "uint32", "unit": "m", "exp": -3, "info": "absolute accuracy as 1sigma. Use 0 if not defined"},

    {"intId": 6, "name": "accX", "dataType": "double", "info": "absolute accuracy as 1sigma. Use 0.0 if not defined"},

    {"intId": 7, "name": "accY", "dataType": "double", "info": "absolute accuracy as 1sigma. Use 0.0 if not defined"},

    {"intId": 8, "name": "accZ", "dataType": "double", "info": "absolute accuracy as 1sigma. Use 0.0 if not defined"}
  ]
 }]
}

SPT2TS-125486 - FunctionalElementProjection

{
 "structs": [
 {
  "name": "FunctionalElementProjection",
  "attrs": [
    {"intId": 1, "name": "elementRef", "composition": "FunctionalElementRef", "info": "Defines reference container for which the coodinate is defined"},

    {"intId": 2, "name": "x", "dataType": "double", "info": "todo: mapping to each EPSG-code"},

    {"intId": 3, "name": "y", "dataType": "double", "info": "todo: mapping to each EPSG-code"},

    {"intId": 4, "name": "z", "dataType": "double", "info": "todo: mapping to each EPSG-code"},

    {"intId": 5, "name": "accX", "dataType": "double", "info": "absolute accuracy as 1sigma. Use 0.0 if not defined"},

    {"intId": 6, "name": "accY", "dataType": "double", "info": "absolute accuracy as 1sigma. Use 0.0 if not defined"},

{"intId": 7, "name": "accZ", "dataType": "double", "info": "absolute accuracy as 1sigma. Use 0.0 if not defined"}
      ]
    },
    {
      "name": "FunctionalElementRef",
      "union": true,
      "attrs": [
        {"intId": 1, "name": "switch", "reference": "infra.Switch", "info": "refers to switch/simple point"},
        {"intId": 2, "name": "etcsMarker", "reference": "infra.ETCSMarker", "info": "refers to ETCS marker"},
        {"intId": 3, "name": "stopLocation", "reference": "infra.StopLocation", "info": "refers to stop location"},
        {"intId": 4, "name": "timingPoint", "reference": "infra.TimingPoint", "info": "Defines a reference to a timing point"},
        {"intId": 5, "name": "operationalPoint", "reference": "infra.OperationalPoint", "info": "Defines a reference to an operational point (station, siding etc)."},
        {"intId": 6, "name": "balise", "reference": "infra.Balise", "info": "Defines a reference to a functional balise"}
      ]
    }
  ]
}

SPT2TS-125484 - MapSet

{
  "structs": [
  {
    "name": "MapSet",
    "attrs": [
      {"intId": 1, "name": "maps", "composition": "Map", "multiplicity": "*", "ordered": "byKey", "info": "Defines container for all Maps in a system"}
    ]
  }]

```
}
```