TCCS - Data Model_11_MAP

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2.1 Package Header

SPT2TS-124910 - Package header


```
{
   "$schema": "ERJU meta-model.json",
   "isDefinedBy": "http://ERJU/datamodel/0.4/map",
   "name": "Map",
   "containerStruct": "MapMgmt",
   "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.

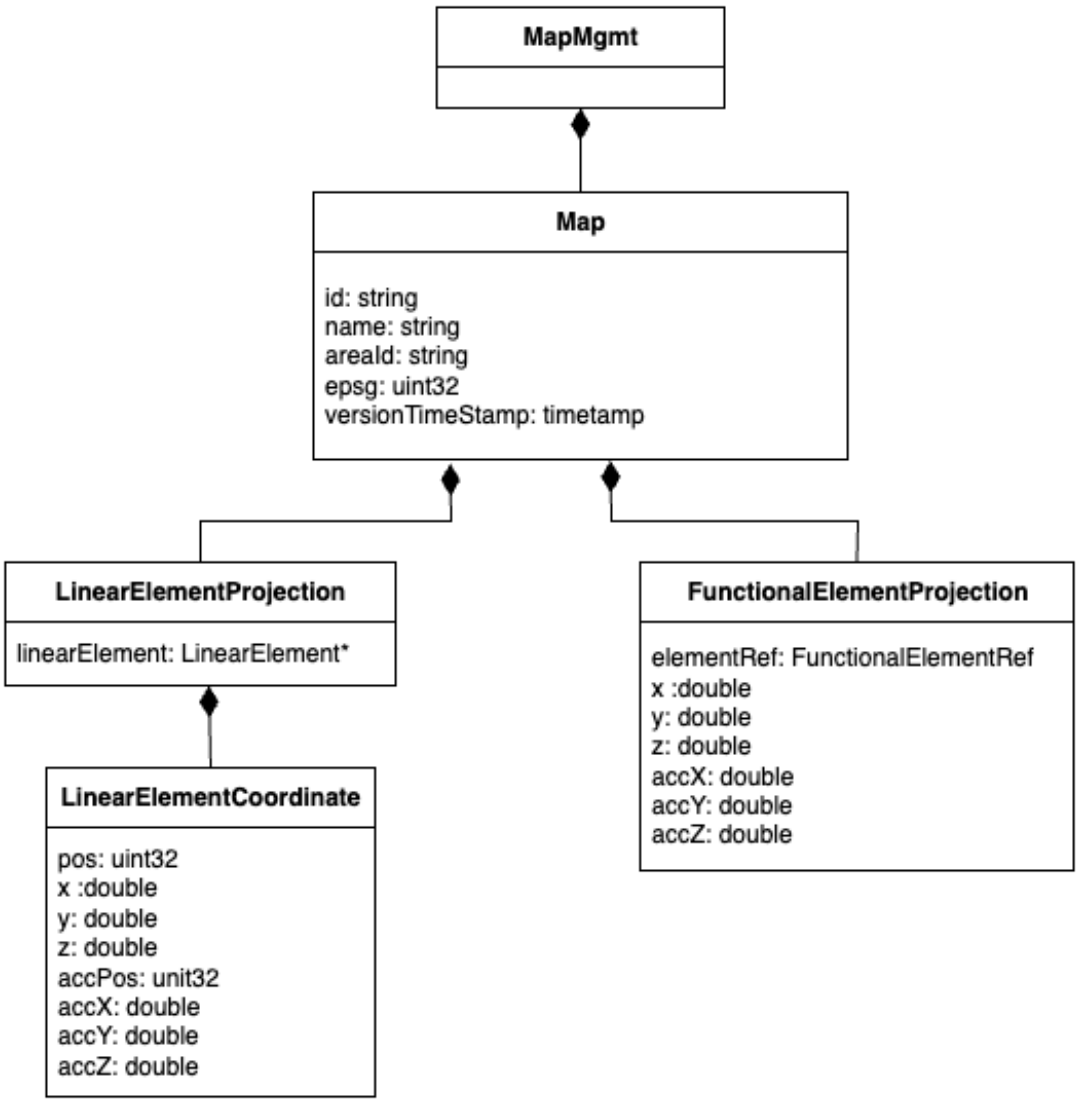

Figure 1 Class Diagram for Map definition

[Open **]**

SPT2TS-63836 - Map

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

{
"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 - MapMgmt

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