

Vector Metadata Specification



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Overview

The Mapbox vector tile specification provides structure for including data values as properties associated with a feature, but no mechanism for interpreting the meaning or intended use. As such, GIBS has developed a specification for defining each property contained within MVTs in its vector products. Each vector product has an associated JSON *vector metadata* file which provides the following information:

- A unique identifier for the property, as found in the MVT data itself
- Descriptive information such as a title, description, and the function of the property (e.g. identification vs styling)
- The data type and optional units for the property
- Valid values for the property
- Additional flags for improved UI experience

Specification



The current vector metadata JSON schema may be found [here](#).

The following table outlines the fields in the GIBS vector metadata specification.

Name	Description	Type	Required?	Sample Value
Identifier	The unique identifier of the MVT property.	String	✓	FRP
Title	A human readable title for the property.	String	✓	Fire Radiative Power
Description	A human readable description for the property.	String	✓	A measure of the rate of radiant heat output from a fire.
Units	The units value to be applied to the actual value of this property.	String	✗	MW
DataType	The data type of this property. Possible values include <i>int</i> , <i>float</i> , <i>string</i> , or <i>datetime</i> .	Enumeration	✓	float
ValueList	A listing of the possible valid values for a 'string' property type, if the property has a controlled list.	Array	? Only one may be used	["Lake Ice", "Sea Ice", "Not Ice"]
ValueRanges	A listing of mutually exclusive min and max value pairs representing ranges of valid values for the 'Integer', 'float', and 'datetime' property types.	Array of Objects		[{ "Min": 0, "Max": 999999999 }]
ValueMap	A map of the possible valid values for 'string' or 'int' property types, and their associated description. This facilitates a key-value lookup table allowing for a simplified property value (i.e. the 'key').	Object		{ 10 : "Processed Fire Pixel", 20 : "Saturated Fire Pixel" }

Function	The property's intended function as a part of the visualization product. Possible values include: <ul style="list-style-type: none"> <i>Identify</i> - Properties that form a "primary key" to identify the visualization product. Often these are used during processing to separate data points into separate layers (e.g. Platform and Day /Night). These properties typically would also be in the associated layer metadata (e.g. Platform or Version) and embedded in the layer identifier (e.g. MODIS_Terra_Day_Fires). <i>Style</i> - Properties that are utilized for styling or filtering vector features. These will typically be included in the default style(s) offered through WMS or the Mapbox Style JSONs. <i>Describe</i> - Properties that provide additional information regarding the vector feature (e.g. Acquisition Time or Inclination Angle). They may be useful for tooltip presentation to users. 	Enumeration	✓	Describe
IsOptional	Indicates whether the property is optional.	Boolean	✓	true
IsLabel	Indicates whether the property should be used to label the point in a user interface.	Boolean	✓	true

All vector metadata file are validated against the following "business logic" rules that extend beyond the basic individual property constraints.

1. A single, non-optional, property will be identified as the "label".
2. A single, non-optional, property will have the "Identify" function, which acts as the primary key for properties.
3. Properties are uniquely identified by their *Identifier* field.
4. Items in the *ValueList* are unique.
5. *ValueRanges* is only supported for properties with a *DataType* of "int", "float", or "datetime."
6. *ValueMap* is only supported for properties with a *DataType* of "int" or "string".

Sample Content

A *vector metadata* file is a list of content blocks defining each property. The following snippet shows an example of a single property's definition within the *vector metadata* file.

MVT Property Snippet
<pre>{ "Identifier" : "NumReactor", "Title" : "Number of Reactors", "Description": "Number of Active Reactors at a given Plant", "Units" : "Reactors", "DataType" : "int", "ValueRanges": [{ "Min": 1, "Max": 9 }], "Function" : "Style", "IsOptional" : false, "IsLabel" : false }</pre>

The following block provides a full example of a *vector metadata* file.

Sample Vector Metadata File

```
{
  "id": "Nuclear_Power_Plant_Locations",
  "mvt_properties": [

    {
      "Identifier" : "Plant",
      "Title"      : "Plant Site Name",
      "Description": "Name of Nuclear Plant",
      "DataType"   : "string",
      "Function"    : "Identify",
      "IsOptional" : false,
      "IsLabel"    : true
    },

    {
      "Identifier" : "NumReactor",
      "Title"      : "Number of Reactors",
      "Description": "Number of Active Reactors at a given Plant",
      "Units"      : "Reactors",
      "DataType"   : "int",
      "ValueRanges": [ { "Min": 1, "Max": 9 } ],
      "Function"    : "Style",
      "IsOptional" : false,
      "IsLabel"    : false
    },

    {
      "Identifier" : "p10_30",
      "Title"      : "Population within 30km (2010)",
      "Description": "Total population within a 30km radius of the nuclear plant (2010)",
      "Units"      : "Persons",
      "DataType"   : "int",
      "ValueRanges": [ { "Min": 275, "Max": 7170590 } ],
      "Function"    : "Describe",
      "IsOptional" : false,
      "IsLabel"    : false
    }
  ]
}
```