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1 Intro OpenDRIVE Signal Catalog

In OpenDRIVE Signals have the attribute @country to differentiate between the signals and signs from different countries. As a default set of signals the country OpenDRIVE is available. How to use and define signals is defined in the ASAM OpenDRIVE Version 1.6 Chapter 12.

Example:

```
<signals>
   <signal        s="3981.4158159146"
                  t="-14.0503"
                  id="5000162"
                  name="Vorschriftzeichen"
                  dynamic="no"
                  orientation="+"
                  zOffset="3.8835"
                  country="Germany"
                  type="274"
                  subtype="100"
                  countryRevision = "2017"
                  value="100"
                  unit="km/h"
                  width="0.77"
                  height="0.77"
                  hOffset="0.0" />
</signals>
```

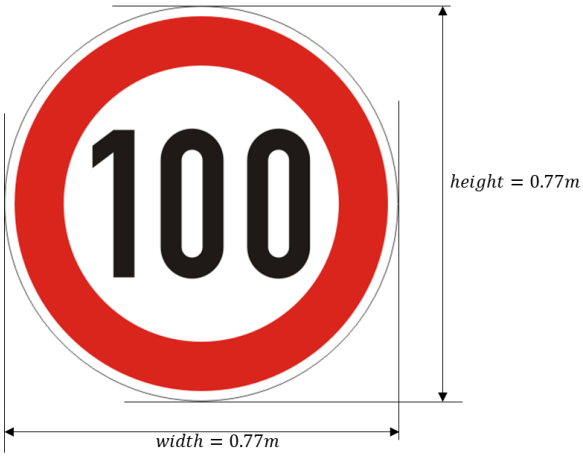


Figure 1: Example Signal definition

In OpenDRIVE 1.5 the attribute @countryRevision was introduced. This is due to the fact that, with a new revision of the signal definition, done by the legal authorities, some types and subtypes of signals may change. For example, in the country revision from 2017 the speed limit sign has the following values for @type and @subtype:

type = 274
subtype = 50

Table 1: Speed limit signal example with country revision 2017

countryRevision	sign	country	type	subtype	unit	value	text
2017		DE	274	50	km/h	50	

In the former revision from 2013 the following values for @type and @subtype were set:

type = 274
subtype = 55

Table 2: Speed limit signal example with country revision 2013

countryRevision	sign	country	type	subtype	unit	value	text
2013		DE	274	55	km/h	50	

The most recent German sign definition can be found here: http://www.vzkat.de/2017/VzKat.htm. Additional Information regarding the German traffic signs can be found in this book: *HAV. Hinweise für das Anbringen von Verkehrszeichen und Verkehrseinrichtungen* (ISBN 978-3-7812-1700-3)

The United States traffic signs can be found here:
https://mutcd.fhwa.dot.gov/services/publications/fhwaop02084/index.htm

In the United states the speed signals do not have unique type and subtypes, the speed value is given in the @value attribute and in the @unit attribute.

Table 3: United States speed limit signal example with country revision 2014

countryRevision	sign	country	type	subtype	unit	value	text
2014		US	R2	1	mph	50	

Please be aware that speed limits drawn on the road, as road marks, are not necessarily signals. In many countries these road marks are not binding and must be accompanied by additional signs.

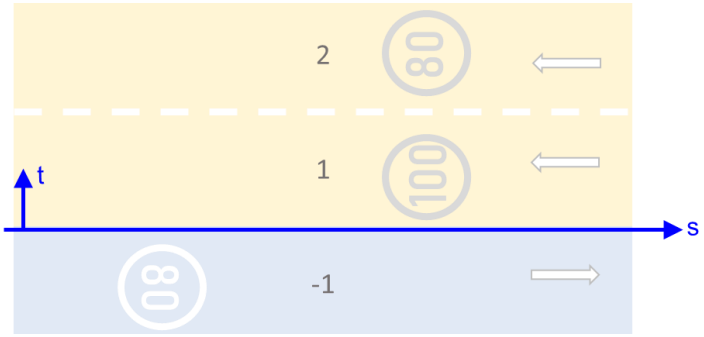


Figure 2: Road marks defining a speed limit

When using the official signal catalogs, provided by the authorities, please be aware to use the following type, subtype encoding:

[type]-[subtype]
If no subtype available set @subtype = -1

Table 4: Example for subtype = -1

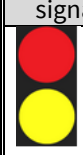
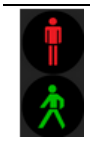
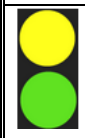
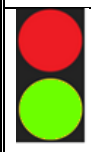
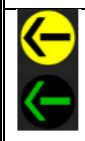
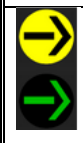
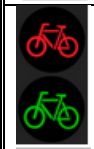
countryRevision	sign	country	type	subtype	unit	value	text
		DE	310	-1			Wilster\n Kreis Steinburg

2 Road Signals:

For country = “OpenDRIVE”, the following signal types and subtypes shall be defined in addition to the identifiers given by the corresponding documentation of the country’s authorities.

2.1 Traffic Signals for all traffic participants

Table 5: Traffic Signals for country OpenDRIVE

signal	type	subtype	signal	type	subtype	signal	type	subtype
	1.000.001	-		1.000.009	10		1.000.011	10
	1.000.002	-		1.000.009	20		1.000.011	20
	1.000.002	10		1.000.009	30		1.000.011	30
	1.000.002	20		1.000.010	10		1.000.011	40
				1.000.010	20		1.000.011	50
	1.000.007	-		1.000.014	-		1.000.013	-
	1.000.007	10		1.000.015	-		1.000.013	10

signal	type	subtype	signal	type	subtype	signal	type	subtype
	1.000.007	20		1.000.016	-		1.000.013	20
	1.000.007	30		1.000.017	-		1.000.013	30
				1.000.018	-		1.000.013	40
				1.000.019	-		1.000.013	50
							1.000.013	60
							1.000.013	70
							1.000.013	80
							1.000.013	90
							1.000.013	100

1.000.003: Pedestrian Crossing

1.000.004: Bicycle Crossing

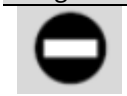
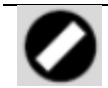
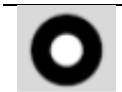
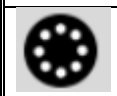
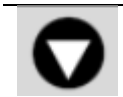
2.2 Single Traffic Signals with arrows

Table 6: Single traffic signals with arrows

signal	type	subtype	signal	type	subtype	signal	type	subtype
	1.000.020	-		1.000.008	-		1.000.012	-
	1.000.020	10		1.000.008	10		1.000.012	10
	1.000.020	20		1.000.008	20		1.000.012	20
	1.000.020	30		1.000.008	30		1.000.012	30
	1.000.020	40		1.000.008	40		1.000.012	40
	1.000.020	50		1.000.008	50		1.000.012	50
	1.000.020	60		1.000.008	60		1.000.012	60
	1.000.020	70		1.000.008	70		1.000.012	70
	1.000.020	80		1.000.008	80		1.000.012	80
	1.000.020	90		1.000.008	90		1.000.012	90
	1.000.020	100		1.000.008	100		1.000.012	100

3 Tram Signals:

Table 7: Tram signals

signal	type	subtype	signal	type	subtype	signal	type	subtype
	F	0		W	0		W	14
	F	1		W	1		W	11
	F	2		W	2		W	12
	F	3		W	3		W	13
	F	4		A	1		A	2B
	F	5		A	X			

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