# **GPX 1.1 Schema Documentation**

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**Schema Document Properties** 

Target Namespace http://www.topografix.com/GPX/1/1

Element and Attribute Namespaces

• Global element and attribute declarations belong to this schema's target namespace.

• By default, local element declarations belong to this schema's target namespace.

• By default, local attribute declarations have no namespace.

**Documentation** 

GPX schema version 1.1 - For more information on GPX and this schema, visit http://www.topografix.com/gpx.asp GPX uses the following conventions: all coordinates are relative to the WGS84 datum. All measurements are in metric units.

#### **Declared Namespaces**

Prefix Namespace

Default namespace http://www.topografix.com/GPX/1/1

xml http://www.w3.org/XML/1998/namespace

xsd http://www.w3.org/2001/XMLSchema

Schema Component Representation

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# **Global Schema Components**

#### **Element: gpx**

Name gpx

Type <u>gpxType</u>

**Nillable** no **Abstract** no

**Documentation** GPX is the root element in the XML file.

# XML Instance Representation

# Schema Component Representation

# Complex Type: gpxType

Parent type: None

Direct sub-types: None

**Name** gpxType

**Abstract** no

**Documentation** GPX documents contain a metadata header, followed by waypoints,

routes, and tracks. You can add your own elements to the extensions

section of the GPX document.

# XML Instance Representation

```
    version="1.1 [1] ?"
    creator="xsd:string [1] ?">
        <metadata> metadataType </metadata> [0..1] ?

        <wpt> wptType </wpt> [0..*] ?

        <rte> rteType </rte> [0..*] ?

        <trk> trkType </trk> [0..*] ?
```

top

```
<extensions> extensionsType </extensions> [0..1] ?
</...>
```

3 Schema Component Representation

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# Complex Type: metadataType

Parent type: None

Direct sub-types: None

Name metadataType

**Abstract** no

**Documentation** Information about the GPX file, author, and copyright restrictions

goes in the metadata section. Providing rich, meaningful information about your GPX files allows others to search for and use your GPS

data.

# XML Instance Representation

#### Schema Component Representation

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# Complex Type: wptType

Parent type: None

Direct sub-types: None

**Name** wptType

**Abstract** no

**Documentation** wpt represents a waypoint, point of interest, or named feature on a

map.



+ Schema Component Representation

lat="latitudeType [1] ?"
lon="longitudeType [1] ?">

<ele> xsd:decimal </ele> [0..1] ?
<time> xsd:dateTime </time> [0..1] ?
<maqvar> degreesType </maqvar> [0..1] ?

<name> xsd:string </name> [0..1] ?
<cmt> xsd:string </cmt> [0..1] ?
<desc> xsd:string </desc> [0..1] ?
<src> xsd:string </src> [0..1] ?
<link> linkType </link> [0..\*] ?
<sym> xsd:string </sym> [0..1] ?
<type> xsd:string </type> [0..1] ?

<fix> fixType </fix> [0..1] ?

<hdop> xsd:decimal </hdop> [0..1]
<vdop> xsd:decimal </vdop> [0..1]
<pdop> xsd:decimal </pdop> [0..1]

<geoidheight> xsd:decimal </geoidheight> [0..1] ?

<sat> xsd:nonNegativeInteger </sat> [0..1] ?

<dgpsid> dgpsStationType </dgpsid> [0..1] ?

<ageofdgpsdata> xsd:decimal </ageofdgpsdata> [0..1] ?

<extensions> extensionsType </extensions> [0..1] ?

Parent type: None

Complex Type: rteType

ı </ . . . >

Direct sub-types: None

**Name** rteType

**Abstract** no

**Documentation** rte represents route - an ordered list of waypoints representing a

series of turn points leading to a destination.

# XML Instance Representation

+ Schema Component Representation

None

no

Complex Type: trkType

Parent type: None

Direct sub-types:

**Abstract** 

Name trkType

**Documentation** trk represents a track - an ordered list of points describing a path.

## XML Instance Representation

```
ı < . . . >
   <name> xsd:string 
[0..1] ?
   <cmt> xsd:string </cmt> [0..1]
   <desc> xsd:string </desc> [0..1] ?
   <src> <u>xsd</u>:string </src> [0..1] ?
   <link> linkType </link> [0..*] ?
   <number> xsd:nonNegativeInteger </number> [0..1] ?
   <type> xsd:string </type> [0..1] ?
   <extensions> extensionsType </extensions> [0..1] ?
   <trkseg> trkseqType </trkseg> [0..*] ?
```

#### Schema Component Representation

Complex Type: extensionsType

Parent type: None Direct sub-types: None

Name extensionsType

**Abstract** no

**Documentation** You can add extend GPX by adding your own elements from another

schema here.

#### XML Instance Representation

```
Allow any elements from a namespace other than this schema's namespace
(lax validation). [0..*]
```

top

top

```
Schema Component Representation
```

#### Complex Type: trksegType

Parent type: None

Direct sub-types: None

I </...>

Name trksegType

**Abstract** no

**Documentation** A Track Segment holds a list of Track Points which are logically

connected in order. To represent a single GPS track where GPS reception was lost, or the GPS receiver was turned off, start a new

Track Segment for each continuous span of track data.

# - XML Instance Representation

```
<...>
    <trkpt> wptType </trkpt> [0..*] ?
    <extensions> extensionsType </extensions> [0..1] ?
</...>
```

A Schema Component Representation

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# Complex Type: copyrightType

Parent type: None

Direct sub-types: None

Name copyrightType

**Abstract** no

**Documentation** Information about the copyright holder and any license governing use

of this file. By linking to an appropriate license, you may place your

data into the public domain or grant additional usage rights.

# XML Instance Representation

## Complex Type: linkType

Parent type: None

Direct sub-types: None

Name linkType
Abstract no

**Documentation** A link to an external resource (Web page, digital photo, video clip,

etc) with additional information.

## XML Instance Representation

- Schema Component Representation

top

#### Complex Type: emailType

Parent type: None

Direct sub-types: None

Name emailType

**Abstract** no

**Documentation** An email address. Broken into two parts (id and domain) to help

prevent email harvesting.

# XML Instance Representation

```
<...
id="<u>xsd</u>:string [1] ?"
domain="<u>xsd</u>:string [1] ?"/>
```

# 3 Schema Component Representation

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# Complex Type: personType

Parent type: None

Direct sub-types: None

Name personType

**Abstract** no

**Documentation** A person or organization.

# XML Instance Representation

# - Schema Component Representation

## Complex Type: ptType

Parent type: None

Direct sub-types: None

Name ptType
Abstract no

**Documentation** A geographic point with optional elevation and time. Available for use

by other schemas.

# XML Instance Representation

```
<...
lat="latitudeType [1] ?"
lon="longitudeType [1] ?">
     <ele> xsd:decimal </ele> [0..1] ?
     <time> xsd:dateTime </time> [0..1] ?
</...>
```

# 3 Schema Component Representation

## Complex Type: ptsegType

Parent type: None

Direct sub-types: None

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Name ptsegType

**Abstract** no

**Documentation** An ordered sequence of points. (for polygons or polylines, e.g.)

## XML Instance Representation

Schema Component Representation

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# Complex Type: boundsType

Parent type: None

Direct sub-types: None

Name boundsType

**Abstract** no

**Documentation** Two lat/lon pairs defining the extent of an element.

## — XML Instance Representation

```
minlat="latitudeType [1] ?"
minlon="longitudeType [1] ?"
maxlat="latitudeType [1] ?"
maxlon="longitudeType [1] ?"/>
```

Schema Component Representation

top

# Simple Type: latitudeType

Parent type: xsd:decimal (derivation method: restriction)

Direct sub-types: None

Name latitudeType

Content

Base XSD Type: decimal

• -90.0 <= *value* <= 90.0

**Documentation** The latitude of the point. Decimal degrees, WGS84 datum.

Schema Component Representation

#### Simple Type: longitudeType

Parent type: xsd:decimal (derivation method: restriction)

Direct sub-types: None

Name longitudeType

Content

Base XSD Type: decimal

• -180.0 <= value < 180.0

**Documentation** The longitude of the point. Decimal degrees, WGS84 datum.

Schema Component Representation

top

#### Simple Type: degreesType

Parent type: xsd:decimal (derivation method: restriction)

Direct sub-types: None

Name degreesType

Content

• Base XSD Type: decimal

• 0.0 <= value < 360.0

**Documentation** Used for bearing, heading, course. Units are decimal degrees, true

(not magnetic).

+ Schema Component Representation

top

# Simple Type: fixType

Parent type: xsd:string (derivation method: restriction)

Direct sub-types: None

Name fixType

Content

Base XSD Type: string

value comes from list: {'none'|'2d'|'3d'|'dgps'|'pps'}

**Documentation** Type of GPS fix. none means GPS had no fix. To signify "the fix info

is unknown, leave out fixType entirely. pps = military signal used

top

# Simple Type: dgpsStationType

Parent type: <u>xsd</u>:integer (derivation method: restriction)

Direct sub-types: None

Name dgpsStationType

Content

• Base XSD Type: integer

• 0 <= value <= 1023

**Documentation** Represents a differential GPS station.

Schema Component Representation

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