

# **Waze Traffic-data**

# **Specification Document**

**Version 2.7**

## Revision History

The following revision table presents the changes made for each version of this document.

Revision	Date	State/Description
1.5	February 2014	Creation based on GeoRSS API spec-doc (Chen Barshai)
2.0	August 2014	Updated (Noam Reshef)
2.5	November 2014	Updated - removed fields, separated JSON and XML tables, added reliability score instead of confidence

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# Introduction

## Overview

This document details the structure and content of the Waze real-time traffic data.

Waze maps provide information about specific routes to assist motorists in avoiding traffic jams. Waze maps and traffic are dynamically updated by a continually expanding network of drivers worldwide. This, of course, reduces the importance of predefined routes. The most accurate representations are through poly-lines – where the traffic is geographically-based, independent of specific map attributes.

We provide information about traffic jams and events that affect road conditions, either from Wazers or from external sources. Wazers provide community road reports or UGI (user-generated incidents) which provide detailed information about specific traffic and road incidents. They may issue reports from the location at which they are currently located or, if no longer at the location, within 30 minutes after the event occurred.

The time period that affects the results can be internally adjusted by the Waze server configuration to provide best results, based upon local conditions. Events include weather conditions, a car stopped at the shoulder and so forth.

To the driver, the question is very simple: should I choose an alternate route or not? Waze provides updates from anywhere our drivers are. The information is provided in real time and, in the case of major events, in considerable detail.

## Terms and Acronyms

The following table provides a list of terms and acronyms used in this document.

Term or Acronym	Definition
GPS	Global Positioning System
TMC	Traffic Message Channel
UGI	User-Generated Incident
Wazer	An active member of the Waze network
Wazer level	1-6, 1 being the entry level - indicating a user's level of experience and trustworthiness
WGS 84	World Geodetic System (1984)
GeoRSS	a standard for encoding location as part of a <a href="#">Web feed</a> .
JSON/XML	A format used to transmit data between a server and web application

## Retrieving Waze traffic-data

Waze uses the GeoRSS API to internally-retrieve its traffic data.

It will then provide it's partner with an XML/JSON file containing all the data which is approved for sharing with the partner.

A file containing real-time information about traffic jams and road incidents in the pre-defined geographical area will be created every 5 minutes, where each new file will be overriding the previous one.

The file will be compressed and password-protected using a [7Z format](#), and the file name will be using the following convention: ***https://<hosting\_path>/<State>rss.json.7z***.

In order to retrieve the latest-generated file, Waze will provide each partner with the following access-details:

- **URL** - a web address from which the partner can retrieve the file using a standard HTTP request. The response will include a content-type header ("text/xml" or "text/x-json") and the data.
- **Password** - an alpha-numeric string to be used in order to open the retrieved file

Please note that the password will be delivered to the partner using an alternative, personal communication channel.

## Using Waze traffic-data

Waze traffic data will consist of several types of information:

1. *General information*: time-stamp of the file, geographic area from which the data was retrieved etc.
2. *Traffic alerts*: traffic incidents reported by users.
3. *Traffic jams*: traffic slowdown information generated by the service based on users location and speed.
4. *Irregularities*: alerts and traffic jams that affect an exceptionally large number of users.

**Note**: from time to time new and optional fields may be added to the feed. Once those fields will be permanently available -- this document will be modified and redistributed to the relevant partners.

### Traffic Alerts

The 'Alerts' section includes all traffic data reported by Waze users through the Waze mobile application.

### Reliability

Those events are relevant for the specific time and location of the report. Each alert gets a **reliability** score based on other users reaction ('Thumbs up', 'Not there' etc.) and the level of the reporter: Wazers gain levels by contributing to the map, starting at 1 and reaching up to 6. The higher the level, the more experienced and trustworthy the Wazer. The score (0-10) indicates, as it's name suggests, how reliable the report is.

The data will include an array of alerts with the following attributes:

#### XML

Element	Value	Description
pubDate	Time	Publication date
georss:point	Coordinates	Location per report (Lat long)
linqmap:uuid	String	Unique system ID
linqmap:magvar	Integer (0-359)	Event direction (Driver heading at report time. 0 degrees at North, according to the driver's device)

linqmap:type	See alert type table	Event type
linqmap:subtype	See alert sub types table	Event sub type - depends on atof parameter
linqmap:reportDescription	String	Report description (optional)
linqmap:street	String	Street name (as is written in database, no canonical form, may be null)
linqmap:city	String	City and state name [City, State] in case both are available, [State] if not associated with a city. Optional.
linqmap:country	String	(see two letters codes in <a href="http://en.wikipedia.org/wiki/ISO_3166-1">http://en.wikipedia.org/wiki/ISO_3166-1</a> )
linqmap:roadType	Integer	Road type (see <a href="#">road types table</a> in the appendix)
linqmap:reportRating	Integer	User rank between 1-6 ( 6 = high ranked user)
linqmap:jamUuid	string	If the alert is connected to a jam - jam ID
linqmap:Reliability (new)	0-10	How reliable is the report, 10 being most reliable. Based on reporter level and user responses
linqmap:imageUrl	URL	<a href="https://s3.amazonaws.com/waze.photos/[IMAGE_ID]">https://s3.amazonaws.com/waze.photos/[IMAGE_ID]</a>

## JSON

Element	Value	Description
pubMillis	Timestamp	Publication date (Unix time – milliseconds since epoch)
location	Coordinates	Location per report (X Y - Long-lat)
uuid	String	Unique system ID
magvar	Integer (0-359)	Event direction (Driver heading at report time. 0 degrees at North, according to the driver's device)
type	See alert type table	Event type
subtype	See alert sub types table	Event sub type - depends on atof parameter
reportDescription	String	Report description (optional)
street	String	Street name (as is written in database, no canonical form, may be null)
city	String	City and state name [City, State] in case both are available, [State] if not associated with a city. Optional.
country	String	(see two letters codes in <a href="http://en.wikipedia.org/wiki/ISO_3166-1">http://en.wikipedia.org/wiki/ISO_3166-1</a> )
roadType	Integer	Road type (see <a href="#">road types table</a> in the appendix)
reportRating	Integer	User rank between 1-6 ( 6 = high ranked user)
jamUuid	string	If the alert is connected to a jam - jam ID
Reliability (new)	0-10	How reliable is the report.....
imageUrl	URL	<a href="https://s3.amazonaws.com/waze.photos/[IMAGE_ID]">https://s3.amazonaws.com/waze.photos/[IMAGE_ID]</a>



## Traffic Alerts - example

### XML format

```
<rss xmlns:georss="http://www.georss.org/georss"
xmlns:linqmap="http://www.linqmap.com" version="2.0">
  <channel>
    <title>GeoRSS</title>
    <description>GeoRSS</description>
    <georss:box>-85.000000,-179.000000,85.000000,179.000000</georss:box>
    <linqmap:time>
      Tue Nov 4 12:51:00 +0000 2014,Tue Nov 4 12:52:00 +0000 2014
    </linqmap:time>
    <item>
      <pubDate>Tue Nov 4 12:43:52 +0000 2014</pubDate>
      <georss:point>32.024313 34.784544</georss:point>
      <linqmap:uuid>c7521b62-4797-3f73-9918-1749546e54ae</linqmap:uuid>
      <linqmap:magvar>150</linqmap:magvar>
      <linqmap:type>POLICEMAN</linqmap:type>
      <linqmap:subtype>POLICE_VISIBLE</linqmap:subtype>
      <linqmap:reportDescription>gggooo</linqmap:reportDescription>
      <linqmap:street>8th Ave.</linqmap:street>
      <linqmap:city>New York</linqmap:city>
      <linqmap:country>US</linqmap:country>
      <linqmap:roadType>2</linqmap:roadType>
      <linqmap:reportRating>0</linqmap:reportRating>
      <linqmap:imageUrl>
        https://s3.amazonaws.com/waze.photos/79890595-c2aa-4ee8-be95-26b95025e89
        b
      </linqmap:imageUrl>
      <reliability>5</reliability>
    </item>
    <item>
      <pubDate>Tue Nov 4 12:26:42 +0000 2014</pubDate>
      <georss:point>32.19577 34.880439</georss:point>
      <linqmap:uuid>ad3fd8a6-2010-3ba6-b683-817ec7831644</linqmap:uuid>
      <linqmap:magvar>170</linqmap:magvar>
      <linqmap:type>POLICEMAN</linqmap:type>
```

```

    <linqmap:subtype/>
    <linqmap:street>5th Ave.</linqmap:street>
    <linqmap:city>New York</linqmap:city>
    <linqmap:country>US</linqmap:country>
    <linqmap:roadType>2</linqmap:roadType>
    <linqmap:reportRating>0</linqmap:reportRating>
    <reliability>5</reliability>
  </item>
</channel>
</rss>

```

### *JSON format*

```

"country":"US",
"city":"New York",
"reportRating":0,
"reliability":5,
"type":"POLICEMAN",
"uuid":"c7521b62-4797-3f73-9918-1749546e54ae",
"roadType":2,
"magvar":150,
"subtype":"POLICE_VISIBLE",
"street":"8th Ave.",
"imageUrl":"https://s3.amazonaws.com/waze.photos/79890595-c2aa-4ee8-be95-26b95025e89b",
"reportDescription":"Police on site",
"location":{"x":34.784544,"y":32.024313},
"pubMillis":1415105032323,

```

## Alert Types

Waze currently supports the following types and subtypes of user-generated alerts:

ID	Alert type	Alert Subtype	
	OTHER / CHIT_CHAT		
	ACCIDENT	<ul style="list-style-type: none"> <li>• ACCIDENT_MINOR</li> <li>• ACCIDENT_MAJOR</li> </ul>	
	JAM	<ul style="list-style-type: none"> <li>• JAM_MODERATE_TRAFFIC</li> <li>• JAM_HEAVY_TRAFFIC</li> <li>• JAM_STAND_STILL_TRAFFIC</li> <li>• JAM_LIGHT_TRAFFIC</li> </ul>	
	WEATHERHAZARD / HAZARD	<ul style="list-style-type: none"> <li>• HAZARD_ON_ROAD</li> <li>• HAZARD_ON_SHOULDER</li> <li>• HAZARD_WEATHER</li> <li>• HAZARD_ON_ROAD_OBJECT</li> <li>• HAZARD_ON_ROAD_POT_HOLE</li> <li>• HAZARD_ON_ROAD_ROAD_KILL</li> <li>• HAZARD_ON_SHOULDER_CAR_STOPPED</li> <li>• HAZARD_ON_SHOULDER_ANIMALS</li> <li>• HAZARD_ON_SHOULDER_MISSING_SIGN</li> <li>• HAZARD_WEATHER_FOG</li> <li>• HAZARD_WEATHER_HAIL</li> <li>• HAZARD_WEATHER_HEAVY_RAIN</li> <li>• HAZARD_WEATHER_HEAVY_SNOW</li> <li>• HAZARD_WEATHER_FLOOD</li> <li>• HAZARD_WEATHER_MONSOON</li> <li>• HAZARD_WEATHER_TORNADO</li> <li>• HAZARD_WEATHER_HEAT_WAVE</li> <li>• HAZARD_WEATHER_HURRICANE</li> <li>• HAZARD_WEATHER_FREEZING_RAIN</li> <li>• HAZARD_ON_ROAD_LANE_CLOSED</li> <li>• HAZARD_ON_ROAD_OIL</li> <li>• HAZARD_ON_ROAD_ICE</li> <li>• HAZARD_ON_ROAD_CONSTRUCTION</li> <li>• HAZARD_ON_ROAD_CAR_STOPPED</li> </ul>	
	MISC		
	CONSTRUCTION		
	ROAD_CLOSED	<ul style="list-style-type: none"> <li>• ROAD_CLOSED_HAZARD</li> <li>• ROAD_CLOSED_CONSTRUCTION</li> <li>• ROAD_CLOSED_EVENT</li> </ul>	

## Traffic Jams information

The jams section includes data about traffic slowdown in specific road segments based on data the system gathers in real time.

A file will include an array of jams and the start time and date of the report. Each jam will include the parameters detailed below.

Waze generates its traffic-jams information by processing the following data-sources:

- GPS location-points sent from users phones (users who drive while using the app) and calculations of the actual speed vs. average speed (on specific time-slot) and free-flow speed (maximum speed measured on the road-segment)
- User-generated reports - reports shared by Waze users who encounter traffic-jams. These appear as regular alerts, and also affect the way we identify and present traffic jams.

Traffic jam parameters are described in the following table:

### XML

Element	Value	Description
pubDate	Time	Publication date
linqmap:type	String	TRAFFIC_JAM
georss:line	List of Longitude and Latitude coordinates	Traffic jam line string (optional)
linqmap:speed	Float	Current average speed on jammed segments in meter/second
linqmap:length	Integer	Jam length in meters
linqmap:delay	Integer	Delay of jam compared to free flow speed, in seconds (in case of block, -1)
linqmap:street	String	Street name (as is written in database, no canonical form. Optional)
linqmap:city	String	City and state name [City, State] in case both are available, [State] if not associated with a city. Optional
linqmap:country	String	available on EU (world) server (see two letters codes in <a href="http://en.wikipedia.org/wiki/ISO_3166-1">http://en.wikipedia.org/wiki/ISO_3166-1</a> )
linqmap:roadType	Integer	Road type (see <a href="#">road types table</a> in the appendix)
linqmap:startNode	String	Nearest Junction/steet/city to jam start (optional, provided when available)
linqmap:endNode	String	Nearest Junction/steet/city to jam end (optional, supplied when available)

linqmap:level	0 - 5	Traffic congestion level (0 = free flow 5 = blocked).
linqmap:uuid	String	Unique jam ID
linqmap:turnLine	Coordinates	A set of coordinates of a turn - only when the jam is in a turn (optional)
linqmap:turnType	String	What kind of turn is it - left, right, exit R or L, continue straight or NONE (no info) (optional)
linqmap:blockingAlertUuid	string	if the jam is connected to a block (see alerts)

## JSON

Element	Value	Description
pubMillis	Timestamp	Publication date (Unix time – milliseconds since epoch)
type	String	TRAFFIC_JAM
line	List of Longitude and Latitude coordinates	Traffic jam line string (optional)
speed	Float	Current average speed on jammed segments in meter/second
length	Integer	Jam length in meters
delay	Integer	Delay of jam compared to free flow speed, in seconds (in case of block, -1)
street	String	Street name (as is written in database, no canonical form. Optional)
city	String	City and state name [City, State] in case both are available, [State] if not associated with a city. Optional
country	String	available on EU (world) server (see two letters codes in <a href="http://en.wikipedia.org/wiki/ISO_3166-1">http://en.wikipedia.org/wiki/ISO_3166-1</a> )
roadType	Integer	Road type (see <a href="#">road types table</a> in the appendix)
startNode	String	Nearest Junction/steet/city to jam start (optional, provided when available)
endNode	String	Nearest Junction/steet/city to jam end (optional, supplied when available)
level	0 - 5	Traffic congestion level (0 = free flow 5 = blocked).
uuid	String	Unique jam ID
turnLine	Coordinates	A set of coordinates of a turn - only when the jam is in a turn (optional)
turnType	String	What kind of turn is it - left, right, exit R or L, continue straight or NONE (no info) (optional)
blockingAlertUuid	string	if the jam is connected to a block (see alerts)

## Traffic jam results - example

*JSON Format*

```

"jams"
:[{"country":"US",
  "city":"New York",
  "level"□
  , "line":[{"x":34.758321,"y":32.045299},{x":34.758138,"y":32.045407},{x":34.757722,"y":32.045569},{x":34.7
57603,"y":32.045611},{x":34.75724,"y":32.04572},{x":34.756692,"y":32.045866},{x":34.755999,"y":32.046
05},{x":34.755264,"y":32.046233},{x":34.754337,"y":32.046427},{x":34.753938,"y":32.046503},{x":34.753
264,"y":32.046619}],
  "length":502,
  "turnType":"NONE",
  "uuid":"b4de944d-4265-3297-93c8-81ec6f7503e0"
  , "endNode":"5th Ave.",
  "speed"□
  .472313703087446,
  "roadType":2,
  "delay":108, "street":"8th Ave.",
  "pubMillis":1415109954422},

```

*XML Format*

```
<georss:box>-85.000000,-179.000000,85.000000,179.000000</georss:box>
<linqmap:time>
Tue Nov 4 14:10:00 +0000 2014,Tue Nov 4 14:11:00 +0000 2014
</linqmap:time>
<item>
<pubDate>Tue Nov 4 14:10:58 +0000 2014</pubDate>
<linqmap:uuid>80969501-dd91-38d1-86d0-2dc54c838f68</linqmap:uuid>
<linqmap:type>TRAFFIC_JAM</linqmap:type>
<georss:line>
32.084203 34.808927 32.083707 34.809179 32.083362 34.809392 32.082984 34.809596 32.082776
34.809661 32.08253 34.809718 32.082341 34.809733 32.082215 34.809738 32.081962 34.809732
32.081899 34.809727 32.081837 34.809719 32.081501 34.809595 32.081383 34.809548 32.081206
34.809479 32.081027 34.809418 32.080736 34.809336 32.08044 34.809228 32.080106 34.809155
32.079907 34.809209
</georss:line>
<linqmap:speed>3.8814829036947596</linqmap:speed>
<linqmap:length>500.0</linqmap:length>
<linqmap:delay>93</linqmap:delay>
<linqmap:endNode> 5th Avenue and 26</linqmap:endNode>
<linqmap:street>5th Avenue</linqmap:street>
<linqmap:city> New York</linqmap:city>
<linqmap:country>US</linqmap:country>
<linqmap:roadType>1</linqmap:roadType>
<linqmap:level>3</linqmap:level>
<linqmap:turnType>NONE</linqmap:turnType>
</item>
```

## Appendix

**Road types table**

Value	Type
1	Streets
2	Primary Street
3	Freeways
4	Ramps
5	Trails
6	Primary
7	Secondary
8, 14	4X4 Trails
15	Ferry crossing
9	Walkway
10	Pedestrian
11	Exit
16	Stairway
17	Private road
18	Railroads
19	Runway/Taxiway
20	Parking lot road
21	Service road