



# The OptimoRoute Web Service Application Programming Interface Specification

**v1.2**

# Table of Contents

<b>1. Introduction.....</b>	<b>4</b>
1.1. Our Web Service API is HTTP based.....	4
1.2. We use JSON for structured data exchange .....	4
1.3. SSL is required .....	4
1.4. Limited number of concurrent requests.....	4
1.5. General error codes .....	4
<b>2. Authentication.....</b>	<b>4</b>
<b>3. The REST API.....</b>	<b>6</b>
3.1. Create Order.....	6
<i>Description.....</i>	6
<i>Input format.....</i>	6
<i>Request example.....</i>	8
<i>Return values .....</i>	9
<i>Error and warning codes.....</i>	9
3.2. Delete Order .....	11
<i>Description.....</i>	11
<i>Input format.....</i>	11
<i>Request example.....</i>	11
<i>Return values .....</i>	11
<i>Error codes.....</i>	11
3.3. Get Routes .....	12
<i>Description.....</i>	12
<i>Input format.....</i>	12
<i>Request example.....</i>	12
<i>Return values .....</i>	12
<i>Error codes.....</i>	13
3.4. Get Scheduling Information.....	14
<i>Description.....</i>	14
<i>Input format.....</i>	14
<i>Request example.....</i>	14
<i>Return values .....</i>	14
<i>Error codes.....</i>	15
3.5. Start Planning.....	16
<i>Description.....</i>	16
<i>Input format.....</i>	16
<i>Request example.....</i>	16
<i>Return values .....</i>	16
<i>Error codes.....</i>	16
3.6. Stop Planning.....	18
<i>Description.....</i>	18

<i>Input format</i> .....	18
<i>Request example</i> .....	18
<i>Return values</i> .....	18
<i>Error codes</i> .....	18
3.7. Get Planning Status .....	19
<i>Description</i> .....	19
<i>Input format</i> .....	19
<i>Request example</i> .....	19
<i>Return values</i> .....	19
<i>Error codes</i> .....	19

## 1. Introduction

This document is the official reference for the Optimo Route Web Service Application Programming Interface (WS API).

### 1.1. Our Web Service API is HTTP based

The methods to retrieve data from our Web Service (WS) API require an HTTP GET request method.

The methods that submit, change, or destroy data require a POST request method.

The API methods will return an error if you do not make your request with the correct HTTP method.

### 1.2. We use JSON for structured data exchange

Our API uses the JSON (JavaScript Object Notation) format.

More information about JSON and how it works can be found here: <http://json.org/> and here: <http://en.wikipedia.org/wiki/JSON>. There are many readily available libraries to convert to and from the JSON format both for popular and for more esoteric programming languages.

### 1.3. SSL is required

Using SSL (https) is required to avoid passing both the authentication key and potentially confidential data in clear text over the web.

### 1.4. Limited number of concurrent requests

The maximum number of concurrent web service API requests for one account or for one IP address is limited to 5.

### 1.5. General error codes

The following error codes are applicable to all API operations:

- AUTH\_KEY\_MISSING – the authentication key is missing
- AUTH\_KEY\_UNKNOWN – a wrong authentication key was supplied
- MALFORMED\_REQUEST – something is wrong with the input
- ERR\_MISSING\_MAND\_FIELD – one of the mandatory fields is missing
- ERR\_INVALID\_PARAM\_FORMAT – one of the specified fields is not in a valid format
- ERR\_TOO\_MANY\_CONNECTIONS – there are too many concurrent requests
- ERR\_INTERNAL – an internal server error occur

There are also error codes specific that are described in the *Return values* section of each method.

## 2. Authentication

The Optimo Route Web Service API authentication key parameter is always required, in addition to all the standard parameters.

You can generate your client ID in the **Administration-> Settings-> WS API** section of the Optimo Route web application. Your authentication key needs to be passed as the value of the *key* parameter.

## 3. The REST API

### 3.1. Create Order

#### Description

Creates a new order in the system.

**URL:** [https://api.optimoroute.com/v1/create\\_order](https://api.optimoroute.com/v1/create_order)

**HTTP Method:** POST

#### Input format

*Note: Properties marked with \* are mandatory.*

Property	Type	Default value	Description
operation*	string enum	CREATE	<ul style="list-style-type: none"> <li><b>CREATE</b> – creates a new order in the system.</li> <li><b>CREATE_IF_FEASIBLE</b> - system first tries to plan the order to make sure it is feasible. If order can be fulfilled it is inserted to the database.</li> </ul> <p><b>NOTE:</b> The CREATE_IF_FEASIBLE operation is experimental and might not be included in the future API releases. The operation blocks other create operations and planning operations initiated through the Optimo Route GUI.</p>
orderNo	string		A user specified order identifier, also displayed in the web application. It can also be used for deleting orders via the WS API.
acceptDuplicateOrderNo	boolean	False	If set to <i>True</i> the system will accept orders with <i>orderNo</i> that already exists in the system.
type*	string enum	D	Delivery (D), Pickup (P) or Task (T). Set it to <b>D</b> for all orders. Currently, only delivery (D) is supported.
date*	date (string)		Delivery date. YYYY-MM-DD format, for example 2013-12-20.
location*	location object		Delivery/Service location.
duration*	integer	5	The time in minutes required to unload the goods or perform a task at the given location.
twFrom	time (string)		The earliest time allowed to begin the service (if the driver arrives too early, he will be forced to wait). 24-hour (military) clock format, for example: 16:00 The valid values range from 00:00 to 23:59.
twTo	time (string)		The deadline to end the service. 24-hour (military) clock format, for example 17:00 The valid values range from 00:00 to 23:59.

assignedTo	string		The serial number of the Driver that this Order must be assigned to. Setting this field forces this Order to be served by the specified Driver.
load1	integer	0	The load requirements of the order, i.e. how many load units (Number of boxes, Kilos, Pounds, Liters etc) should be delivered. The meaning of this entry depends on the provided <a href="#">configuration of load/capacity constraints</a> .
load2	integer	0	See load1.
load3	integer	0	See load1.
load4	integer	0	See load1.
load5	integer	0	See load1.
vehicleFeatures	list of strings		The vehicle features used to differentiate some Vehicles from the others. The required vehicle features are defined as a list of vehicle feature codes.
skills	list of strings		The driver skills used to differentiate some Drivers from the others. The required skills are defined as a list of skill codes.
notes	string		The optional note that will accompany the driver's instructions. Notes do not affect the optimization process. A free form string.

Location object can be defined with the following fields:

Property	Type	Default value	Description
address	string		The full address including the country, for example <i>393 Hanover St, Boston, MA 02113, US</i>
acceptMultipleResults	boolean	False	Used only if a new location is created by geocoding the <i>address</i> field. If set to <i>False</i> , the system will not accept the geocoded addresses where several results matching the provided address have been found and an error will be raised.
acceptPartialMatch	boolean	False	Used only if a new location is created by geocoding the <i>address</i> field. If set to <i>False</i> , the system will not accept the geocoded addresses that were only a partial match (lower geocoding confidence) and an error will be raised.
locationNo	string		The unique identifier for the given location.
locationName	string		Location name.
latitude	decimal		Location GPS latitude.
longitude	decimal		Location GPS longitude.

A location is defined by one of the following:

- **locationNo**– the location number of a location already existing in the system. An existing location is used. (**NOTE:** the **address**, **latitude + longitude** and **locationName** should **NOT** be specified, otherwise the system will try to geocode the location **again** or create one with a defined GPS location)
- **latitude + longitude + locationName** (with optional **address** and **locationNo**) – the location is defined by the GPS latitude and longitude.  
The location name will be set to the value of *locationName* field.  
The location address will be set to *address* if *address* is set, otherwise it will be left blank.  
The location number will be set to *locationNo* if *locationNo* is set, otherwise it will be left blank.
- **address** (with optional **locationName** and **locationNo**) – the location address will be geocoded based on the supplied *address*.  
The location name will be set to *locationName* field if *locationName* is supplied, otherwise it will be set to the value of *address* field.  
The location number will be set to *locationNo* if *locationNo* is set, otherwise it will be left blank.

### Request example

```
curl -d '@reqbody.json' 'https://api.optimoroute.com/v1/create_order?key=AUTH_KEY'
```

(where reqbody.json is a local file containing the JSON data to be posted. See the request body example here below)



Request body example:

```
{
  "operation": "CREATE",
  "orderNo": "ORD001",
  "type": "D",
  "date": "2014-10-14",
  "location": {
    "address": "393 Hanover St, Boston, MA 02113, USA",
    "locationNo": "LOC001",
    "locationName": "Green Cross Pharmacy North End",
    "acceptPartialMatch": true
  },
  "duration": 20,
  "twFrom": "10:00",
  "twTo": "10:59",
  "load1": 10,
  "load2": 25,
  "vehicleFeatures": ["FR"],
  "skills": ["SK001", "SK002"],
  "notes": "Deliver at back door"
}
```

## Return values

Property	Type	Default value	Description
success*	boolean		True if order was saved, false if there was an error.
Code	string		An error code or a warning code (not set if the operation was successful).
message	string		An error description or a warning description (not set if the operation was successful).
geocodingResults	list		The list of geocoding results if the location is created from the supplied address. Each geocoding result is defined as: [geocodedAddress*, latitude*, longitude*, partialMatchFlag]

## Error and warning codes

- ERR\_ORD\_EXISTS - an order with the specified *orderNo* already exists in the system (checked only if *orderNo* field is set)
- ERR\_DRV\_NOT\_EXISTS - the driver with the serial number passed in *assignedTo* does not exist
- ERR\_DRV\_MULTIPLE - there is more than one drivers with the *assignedTo* serial number
- ERR\_LOC\_NOT\_VALID - the specified location is not valid
- ERR\_LOC\_GEOCODING - the specified address could not be geocoded
- ERR\_LOC\_GEOCODING\_MULTIPLE - multiple results have been found during geocoding

- ERR\_LOC\_GEOCODING\_PARTIAL – the geocoder did not return an exact match for the original request
- ERR\_LOC\_NON\_EXISTING\_LOC – the location specified by *locationNo* does not exist
- ERR\_LOC\_MULTIPLE\_LOC – multiple locations with specified *locationNo* have been found
- ERR\_VF\_NOT\_EXISTS – the vehicle feature does not exist (for one of the codes specified in *vehicleFeatures* field)
- ERR\_VF\_MULTIPLE – multiple vehicle features exist (for one of the codes specified in the *vehicleFeatures* field)
- ERR\_SK\_NOT\_EXISTS – the vehicle skill does not exist (for one of the codes specified in the *skills* field)
- ERR\_SK\_MULTIPLE – multiple skills exist (for one of the codes specified in *skills* field)
- ERR\_TIMEOUT - only applicable if CREATE\_IF\_FEASIBLE operation is set – this error is raised if the operation timed out while waiting for another optimization to finish or the optimization took too long.
- ERR\_NOT\_FEASIBLE – only applicable if CREATE\_IF\_FEASIBLE operation is set – this error is raised if it is not possible to fulfill the order (taking in consideration all the existing orders and constraints)
- WAR\_LOC\_GEOCODING\_MULTIPLE – multiple results have been found during geocoding (but the order was created because *acceptMultipleResults* was set to True)
- WAR\_LOC\_GEOCODING\_PARTIAL – the geocoder did not return an exact match for the original request (but the order was created because *acceptPartialMatch* was set to True)

## 3.2. Delete Order

### Description

Removes an order from the system.

**URL:** [https://api.optimoroute.com/v1/delete\\_order](https://api.optimoroute.com/v1/delete_order)

**HTTP Method:** POST

### Input format

*Note: Properties marked with \* are mandatory.*

Property	Type	Default value	Description
orderNo*	string		The user-specified identifier of the order to be deleted.

### Request example

```
curl -d '@reqbody.json' 'https://api.optimoroute.com/v1/delete_order?key=AUTH_KEY'
```

(where reqbody.json is a local file containing the JSON data to be posted. See the request body example here below)

Request body example:

```
{
  "orderNo": "ORD001"
}
```

### Return values

Property	Type	Default value	Description
success*	boolean		True if order was deleted, false if there was an error.
code	string		An error code or a warning code (not set if the operation was successful).
message	string		An error description or a warning description (not set if the operation was successful).

### Error codes

- ERR\_ORD\_NOT\_FOUND – the order with the matching *orderNo* was not found
- ERR\_MULTIPLE\_ORD\_FOUND – there are multiple orders matching the *orderNo*

### 3.3. Get Routes

#### Description

Gets the Routes for a specific date.

**URL:** [https://api.optimoroute.com/v1/get\\_routes](https://api.optimoroute.com/v1/get_routes)

**HTTP Method:** GET

#### Input format

*Note: Properties marked with \* are mandatory.*

Property	Type	Default value	Description
date*	date (string)		Queried date. YYYY-MM-DD format, for example 2013-12-20.
driverSerial	string		Optionally filter by Serial number of the Driver.
vehicleRegistration	string		Optionally filter by Vehicle registration.

#### Request example

```
curl 'https://api.optimoroute.com/v1/get_routes?key=AUTH_KEY&date=2013-12-20'
```

#### Return values

Property	Type	Default value	Description
success*	boolean		True if the query was successful, false if there was an error.
routes*	list of route objects	[]	List of routes matching the query.
code	string		An error code or a warning code (not set if the operation was successful).
message	string		An error description or a warning description (not set if the operation was successful).

Route object:

Property	Type	Default value	Description
driverSerial*	string		The serial number assigned to the driver.
driverName*	string		The driver's name.
vehicleRegistration*	string		Vehicle registration.
vehicleLabel*	string		Vehicle label.
duration*	integer		Route duration in minutes.
distance*	decimal		Route distance in kilometers.
load1*	integer	0	Route load #1.
load2*	integer	0	Route load #2.
load3*	integer	0	Route load #3.
load4*	integer	0	Route load #4.
load5*	integer	0	Route load #5.
stops*	list of stop objects	[]	An ordered list of stops/orders on the route.

Stop object:

Property	Type	Default value	Description
stopNumber*	integer		Stop number. Starts at 1.
orderNo*	string		The order number.
locationNo*	string		Location number.
locationName*	string		Location name.
address*	string		Location address.
latitude*	decimal		Location latitude.
longitude*	decimal		Location longitude.
scheduledAt*	time (string)		The scheduled time to begin the service 24-hour (military) clock format, for example: <i>16:00</i> The valid values range from <i>00:00</i> to <i>23:59</i> .

## Error codes

None.

### 3.4. Get Scheduling Information

#### Description

Gets the scheduling information for the specified Order.

**URL:** [https://api.optimoroute.com/v1/get\\_scheduling\\_info](https://api.optimoroute.com/v1/get_scheduling_info)

**HTTP Method:** GET

#### Input format

*Note: Properties marked with \* are mandatory.*

Property	Type	Default value	Description
orderNo*	string		The user-specified identifier for the order.

#### Request example

```
curl 'https://api.optimoroute.com/v1/get_scheduling_info?key=AUTH_KEY&orderNo=ORD001'
```

#### Return values

Property	Type	Default value	Description
success*	boolean		True if the query was successful, false if there was an error.
orderScheduled	boolean		True if the order is scheduled, False otherwise.
scheduleInformation	schedule info object		The order scheduling information.
code	string		An error code or a warning code (not set if the operation was successful).
message	string		An error description or a warning description (not set if the operation was successful).

Order scheduling information object:

Property	Type	Default value	Description
driverSerial*	string		The serial number assigned to the driver.
driverName*	string		The driver's name.
vehicleRegistration*	string		Vehicle registration.
vehicleLabel*	string		Vehicle label.
stopNumber*	integer		Stop number on the route. Starts at 1.
scheduledAt*	time (string)		The scheduled time to begin the service 24-hour (military) clock format, for example: 16:00 The valid values range from 00:00 to 23:59.

## Error codes

- ERR\_ORD\_NOT\_FOUND – order with the matching *orderNo* was not found
- ERR\_MULTIPLE\_ORD\_FOUND – multiple orders with matching *orderNo* were found

### 3.5. Start Planning

#### Description

Starts the planning process for the specified date.

**URL:** [https://api.optimoroute.com/v1/start\\_planning](https://api.optimoroute.com/v1/start_planning)

**HTTP Method:** POST

#### Input format

*Note: Properties marked with \* are mandatory.*

Property	Type	Default value	Description
date*	date (string)		Date to be planned. YYYY-MM-DD format, for example 2013-12-20.

#### Request example

```
curl -d '@reqbody.json' 'https://api.optimoroute.com/v1/start_planning?key=AUTH_KEY'
```

(where reqbody.json is a local file containing the JSON data to be posted. See the request body example here below)

Request body example:

```
{
  "date": "2013-12-20"
}
```

#### Return values

Property	Type	Default value	Description
success*	boolean		True if order was deleted, false if there was an error.
code	string		Error or warning code (not set if operation was successful).
planningId	integer		Planning process id – can be used later for getting the planning status or stopping the planning process.

#### Error codes

- ERR\_OPT\_TRIAL\_ENDED – free trial has ended for this account
- ERR\_OPT\_RUNNING\_FOR\_DATE– planning is already running for this date
- ERR\_OPT\_NO\_REQUESTS – no orders exist for the specified date
- ERR\_OPT\_NO\_RESOURCES – no drivers are available for this date
- ERR\_OPT\_RESOURCES\_EXCEEDED – number of driver exceeded



- ERR\_OPT\_REQUESTS\_EXCEEDED – number of orders exceeded
- ERR\_OPT\_COULD\_NOT\_START – internal error, please contact support

## 3.6. Stop Planning

### Description

Stops the planning process.

**URL:** [https://api.optimoroute.com/v1/stop\\_planning](https://api.optimoroute.com/v1/stop_planning)

**HTTP Method:** POST

### Input format

*Note: Properties marked with \* are mandatory.*

Property	Type	Default value	Description
planningId*	integer		The id of the planning process to be stopped

### Request example

```
curl -d '@reqbody.json' 'https://api.optimoroute.com/v1/stop_planning?key=AUTH_KEY'
```

(where reqbody.json is a local file containing the JSON data to be posted. See the request body example here below)

Request body example:

```
{
  "planningId": 8828
}
```

### Return values

Property	Type	Default value	Description
success*	boolean		True if order was deleted, false if there was an error.
code	string		An error code or a warning code (not set if the operation was successful).

### Error codes

- ERR\_JOB\_NOT\_FOUND – planning job with specified id was not found
- ERR\_OPT\_NOT\_RUNNING – planning job is not running
- ERR\_OPT\_COULD\_NOT\_STOP – internal error, please contact support

### 3.7. Get Planning Status

#### Description

Returns the status of the planning process.

**URL:** [https://api.optimoroute.com/v1/get\\_planning\\_status](https://api.optimoroute.com/v1/get_planning_status)

**HTTP Method:** POST

#### Input format

*Note: Properties marked with \* are mandatory.*

Property	Type	Default value	Description
planningId*	integer		The id of the planning process

#### Request example

```
curl 'https://api.optimoroute.com/v1/get_planning_status?key=AUTH_KEY&planningId=8828'
```

#### Return values

Property	Type	Default value	Description
success*	boolean		True if the order was deleted, false if an error occurred.
code	string		An error code or a warning code (not set if the operation was successful).
status	string		<b>N</b> - New <b>R</b> - Running <b>C</b> - Cancelled by the user <b>F</b> - Finished <b>E</b> - Error occurred
percentageComplete	integer		Percentage complete – values range from 0 to 100.

#### Error codes

- **ERR\_JOB\_NOT\_FOUND** – the planning job with the specified id was not found