

NS REST API

MIGRATION GUIDE



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1. PREFACE

The old NS API is becoming more difficult for our teams to maintain as it consists of mainly legacy code and it depends on systems that are being replaced. Therefore, we have decided to replace the old API with a new API. It will allow us to connect to newer systems providing more up to date information and apply modern standards such as [JSON](#) and following [OpenAPI](#) specifications.

This document will describe how to migrate applications that are currently using the old NS API to the new API. NS specific terminology will be explained in the glossary included in this document. Some of the terms described will be in Dutch but not speaking the language should not impact the ability to use this API.

With the new API we also released a new [developer portal](#). On this portal some API's that already exist in the NS application landscape will be released to the public in the future. This portal is currently only available in the Dutch language, multi language support is still in development.

In this document it is assumed you already have an application connected to the old public NS API. If this is not the case and you are creating a new application or connecting an application for the first time this guide will not be in your full interest and you should refer to the [developer portal](#) for all the relevant documentation.

2. NPM LIBRARY

In order to make it easier to use the API in combination with NPM we have released a library that is a high-level wrapper around the new API. It is available [here](#). The code is open source and we welcome you to make changes where you seem fit. The NSR team will be responsible for reviewing pull requests, though community feedback is always welcome. The source code can be found [here](#).

3. GLOSSARY

Term	Description
Baanvak	A track connecting 2 stations.
Disruption	A disruption is either a planned event e.g. maintenance on a rail track or an unplanned event e.g. a signal malfunction which interferes with the train schedule.
New API	The NS API available at https://gateway.apiportal.ns.nl/
Old API	The NS API available at http://webservices.ns.nl/
Developer portal	The new NS API portal available at https://apiportal.nl.nl/
Reisdeel	A part of a trip that can be made without a transfer.
Ritnummer	Unique identifier for a specific reisdeel.
Station code	Code that uniquely identifies each station.
Traject	The route between 2 stations.
UIC code	International code standard to uniquely identify a station.

4. AUTHENTICATION

CREATING AN ACCOUNT

To receive an API key you will need to create an account on the [developer portal](#). You can register using an e-mail address or a LinkedIn account. When creating a business-related account, we recommend a generic name like *"info.yourcompany@gmail.com"* so multiple employees can access the account. Create an account using the following steps:

1. Click the *"Aanmelden"* button in the top right corner of the screen.
2. Click *"Externe bezoeker"* and click *"Sign up now"* for an e-mail based account or click the LinkedIn button to sign up with LinkedIn.

ACQUIRING AN API KEY

Once an account has been created an API key can be requested on a specific product. A product contains 1 or more API's that will be accessible via the same key. To request an API key use the following steps:

1. Go to the product [Public-Travel-Information-API](#)
2. Click the *"Abonneren"* button
3. Optional, fill in a subscription name for easy reference.

4. Read and accept the terms and conditions and click the “*Bevestigen*” button

All subscriptions and keys can be found in [your profile](#). More information in Dutch about signing-up, your account and the developer portal can be found [here](#).

When making an API request provide your primary or secondary API key with the following header “*Ocp-Apim-Subscription-Key*”.

5. DEPARTURE TIMES

Providing a station code, you can get a list of departure times for the requested station. For all relevant station information see [Stations](#). For more information please refer to the [developer portal](#).

ENDPOINTS

1. DEFAULT

Will return a list of departures.

Old API

GET /ns-api-avt?station=Utrecht%20Centraal

New API

GET /public-reisinformatie/api/v2/departures?station=UT&lang=en

PARAMETERS

Name	Use	Default	Values	Description
station	Mandatory if uicCode is not specified. If both are specified, the station parameter will be used.			The station code. Note that only the station code is allowed and names are no longer supported.
uicCode	Mandatory if station is not specified			The UIC code of the station
lang	Optional	nl	nl en	The language in which to return messages. Note that not all messages are translated.
dateTime	Optional			Datetime in ISO8601 format. Show arrivals from this datetime and later
maxJourneys	Optional			Integer, Limit the resultset to this maximum
source	Unused			

RESPONSE

```

1. {
2.   "links": {
3.     "disruptions": {
4.       "uri": "/api/v2/disruptions?station=UT",
5.       "params": {}
6.     }
7.   },
8.   "payload": {
9.     "departures": [{
10.      "direction": "Rotterdam Centraal",
11.      "name": "NS 622",
12.      "plannedDateTime": "2018-10-09T08:48:00+0200",
13.      "plannedTimeZoneOffset": 120,
14.      "actualDateTime": "2018-10-09T08:54:00+0200",
15.      "actualTimeZoneOffset": 120,
16.      "plannedTrack": "8",
17.      "product": {
18.        "number": "622",
19.        "categoryCode": "IC",
20.        "shortCategoryName": "IC",
21.        "longCategoryName": "Intercity",
22.        "operatorCode": "NS",
23.        "operatorName": "NS",
24.        "type": "TRAIN"
25.      },
26.      "trainCategory": "Intercity",
27.      "cancelled": false,
28.      "routeStations": [{
29.        "uicCode": "8400258",
30.        "mediumName": "Gouda"
31.      }, {
32.        "uicCode": "8400507",
33.        "mediumName": "Alexander"
34.      }]
35.    }
36.    "meta": {
37.      "numberOfDisruptions": 3
38.    }
39.  }

```

RESPONSE MAPPING

The following table can be used to migrate from the old API to the new API. Please note that the new response contains more information than described below to keep this guide focussed. For the full response explanation please refer to the documentation available on the [developer portal](#).

Old response field	New response field	Remark
RitNummer	product.number	
VertrekTijd	plannedDateTime, actualDateTime	In case of a delay the actualDateTime field will also be present in the response. The difference between the 2 date times is the delay.
EindBestemming	direction	
RouteTekst	routeStations	Instead of a single line of text like the old API. The new API returns an array containing the name and UIC Code of all the stations the train will stop at. Note: stations that the train passes but does not stop at are not present in the list.
Vervoerder	product.operatorName	operatorCode returns the code of the operator. In some cases these might differ from the name. e.g. ARR for Arriva.
VertrekSpoor	plannedTrack, actualTrack	In case of a track alteration the field 'actualTrack' will also be present in the response.
Opmerkingen	messages	Special messages about the departure. E.g. "Train will not stop at a certain station".

6. DISRUPTIONS

The disruptions endpoint returns a list of disruptions. Both planned and unplanned disruptions will be in the same response, using a 'type' field to distinguish between the two. For more information please refer to the [developer portal](#).

ENDPOINTS

1. DEFAULT

Returns a list of disruptions.

Old API

```
GET /ns-api-storingen?actual=true&unplanned=false
```

New API

```
GET /public-reisinformatie/api/v2/disruptions?
type=storing&actual=true&lang=en
```

2. SPECIFIC DISRUPTION

Returns a specific disruption.

Old API

Not available

New API

GET /public-reisinformatie/api/v2/disruptions/:id

Parameter :id The id of the disruption with or without the 'prio-' prefix. A disruption returned by the default endpoint contains a numerical id with an optional 'prio-' prefix. E.g. 'prio-106704' or '106704'.

3. SPECIFIC STATION

Returns disruptions for a specific station.

Old API

GET /ns-api-storingen?station=UT

New API

GET /public-reisinformatie/api/v2/disruptions/station/UT

Parameter :stationcode The station code of the required station.

PARAMETERS

Name	Use	Default	Values	Description
type	Optional		storing werkzaamheid	Type of disruptions to return. 'storing' will return unplanned disruptions and 'werkzaamheid' returns planned disruptions. If omitted both planned and unplanned disruptions will be returned.
actual	Optional	false	true false	If set to true only disruptions within 2 hours in the future of the request will be returned.
lang	Optional	nl	nl en	The language in which to return the disruption messages, note that not all messages are translated.

RESPONSE

```

1. {
2.   "links": {},
3.   "payload": [{
4.     "id": "106527",
5.     "type": "verstoring",
6.     "titel": "Utrecht-Tiel",
7.     "topic": "disruption_106527_nl",
8.     "verstoring": {

```



```

9.         "id": "106527",
10.        "reisadviezen": {
11.            "titel": "",
12.            "reisadvies": [{
13.                "titel": "",
14.                "advies": []
15.            }]
16.        },
17.        "verwachting": "Dit duurt tot ongeveer 11:30 uur.",
18.        "gevolg": "",
19.        "gevolgType": "GEEN_TREINEN",
20.        "fase": "2",
21.        "alternatiefVervoer": "",
22.        "landelijk": false,
23.        "oorzaak": "Tussen Geldermalsen en Tiel rijden er geen treinen door
    een defecte bovenleiding.",
24.        "header": "Utrecht-Tiel",
25.        "meldtijd": "2018-10-09T06:57:13+0000",
26.        "type": "STORING",
27.        "baanvakken": [{
28.            "stations": ["gdm", "tpsw", "tl"]
29.        }, {
30.            "stations": ["tl", "tpsw", "gdm"]
31.        }],
32.        "trajecten": [{
33.            "stations": ["ut", "utvr", "utln", "htn", "htnc", "cl", "gdm", "
    tpsw", "tl"],
34.            "begintijd": "2018-10-09T06:38:00+0000",
35.            "eindtijd": "2018-10-09T09:30:00+0000",
36.            "richting": "HEEN_EN_TERUG"
37.        }],
38.        "versie": "1",
39.        "volgnummer": "4",
40.        "prioriteit": 10
41.    }
42.  }],
43.  "meta": {}
44. }

```

RESPONSE MAPPING

Please note that the new response contains more information than described below, for the full response explanation please refer to the documentation available on the [developer portal](#).

Old response field	New response field	Remark
id	id	
Traject	trajecten	This field now contains an array listing all affected station. Note that the actual tracks on which the disruption is present can be found in the 'baanvakken' field.
Reden	oorzaak	
Bericht	oorzaak + verwachting	To get the complete message like before you must combine the two new fields.
Datum	meldtijd	Note the timezone notation is in GMT.

7. STATIONS

The stations endpoint returns a list of stations. The response contains more information and is more up-to-date compared to the list returned by the old API. For more information please refer to the [developer portal](#).

ENDPOINTS

1. DEFAULT

Old API

GET /ns-api-stations-v2

New API

GET /public-reisinformatie/api/v2/stations

PARAMETERS

None

RESPONSE

```
1. {
2.   "links": {},
3.   "payload": [{
4.     "synoniemen": [],
5.     "heeftFaciliteiten": true,
6.     "heeftVertrektijden": true,
7.     "heeftReisassistentie": false,
8.     "code": "AC",
9.     "namen": {
10.      "lang": "Abcoude",
11.      "kort": "Abcoude",
12.      "middel": "Abcoude"
13.    },
14.     "stationType": "STOPTREIN_STATION",
15.     "land": "NL",
16.     "UICCode": "8400047",
17.     "lat": 52.2785,
18.     "lng": 4.977,
19.     "radius": 200,
20.     "naderenRadius": 1200,
21.     "EVACode": "8400047"
22.   }],
23.   "meta": {}
24. }
```

RESPONSE MAPPING

Please note that the new response contains more information than described below. For the full response explanation see the documentation available on the [developer portal](#).

Old response field	New response field	Remark
Code	Code	
Type	stationType	
Namen.Kort	namen.kort	
Namen.Middel	namen.middel	
Namen.Lang	namen.lang	
Land	land	
UICCode	UICCode	
Lat	lat	
Lon	lng	
Synoniemen	synoniemen	

8. PRICES

The price endpoint has changed significantly and will provide the data in a different format. Prices can also be directly obtained by using the Travel advice endpoint. For more information please refer to the [developer portal](#).

ENDPOINTS

1. DEFAULT

Returns a list of prices for a specified trip.

Old API

GET /ns-api-prijzen-v3?from=rtd&to=ghm

New API

GET /public-prijsinformatie/prices?
fromStation=rtd&toStation=ghm&date=2018-10-17

PARAMETERS

Name	Use	Default	Values	Description
fromStation	Required			The station code, short name, middle name, long name, UIC code or station varcode.

toStation	Required			The station code, short name, middle name, long name, UIC code or station varcode.
date	Required			The departure date formatted in 'yyyy-mm-dd'

RESPONSE

You can see an example response by using the [developer portal](#).

RESPONSE MAPPING

The price response has changed significantly compared to the old API. A list containing various price options is returned. These options range from single and return tickets to yearly subscriptions.

Old response field	New response field	Remark
ReisType	productType	The travelProducts field contains information about the specific product used e.g. an OV-chipkaart or an ETICKET. It also contains information about the trip being single or return.
ReisKlasse	classType	Indicates the travel class. 'FIRST' or 'SECOND'
Vervoerder	trajecten.transporter	Note that in case of 'FREE_TRAVEL' the operator name is omitted.
Korting	discountType	The discount applied to the price possible values: 'NONE', 'TWENTY_PERCENT' or 'FOURTY_PERCENT'.
VervoerderKeuze	type	The vervoerderkeuze has been replaced by the type and trajecten fields. Possible type values are: 'ROUTE_WITH_INDICATION', 'FREE_TRAVEL' or 'ROUTE_WITHOUT_OPTIONS'. The operator can be found in the 'trajecten' field.
prijs	price	Price in eurocent.
Tariefeenheden	tariefPunten	

9. TRAVEL ADVICE

The travel advice endpoint has been expanded significantly. To keep this migration guide focussed options that were not available in the old API will not be explained. For all parameters and their usage please refer to the documentation available on the [developer portal](#).

ENDPOINTS

1. DEFAULT

Old API

```
/ns-api-treinplanner?  
fromStation=Utrecht+Centraal&toStation=Wierden&departure=true
```

New API

```
public-reisinformatie/api/v3/trips?  
fromStation=Utrecht+Centraal&toStation=Wierden
```

PARAMETERS

Name	Use	Default	Values	Description
fromStation	Mandatory	-		The station code, short name, middle name, long name or synonym.
toStation	Mandatory	-		The station code, short name, middle name, long name or synonym.
viaStation	Optional	-		The station code, short name, middle name, long name or synonym.
dateTime	Mandatory	-		The departure or arrival datetime specified in ISO 8601 format.
departure	Optional	True	true false	Whether the specified dateTime is the departure time or arrival time. Departure=false meaning the specified dateTime is the arrival time.
hslAllowed	Optional	False	true false	Whether the usage of high-speed lines that require a reservation is allowed.
yearCard	Optional	False	true false	Whether to show options that are only allowed when you have an unlimited travel season ticket. In dutch: "je kunt terugsteken".

RESPONSE

You can see an example response by using the [developer portal](#).

RESPONSE MAPPING

Please note that the new response contains more information than described below, for the full response explanation please refer to the documentation available on the developer portal.

Old response field	New response field	Remark
AantalOverstappen	transfers	
GeplandeReistijd	plannedDurationInMinutes	

ActueleReistijd	actualDurationInMinutes	
Optimaal	optimal	
GeplandeVertrekTijd	legs.origin.plannedDateTime	
ActueleVertrekTijd	legs.origin.actualDateTime	
GeplandeAankomstTijd	legs.destination.plannedDateTi me	
ActueleAankomstTijd	legs.destination.actualDateTime	
Status	status	
ReisDeel	legs	
reisSoort	legs.product.type	
Vervoerder	legs.product.operatorName	
VervoerType	legs.product.longCategoryName	
RitNummer	legs.product.number	
ReisDeel.status	status	Only a status for the entire trip is available. Each leg does contain a 'cancelled' field which will tell if that specific leg has been cancelled.
ReisStop.Naam	legs.stops.name	Note that all stations along the route are available in this list. To check whether a train stops at a specific station make sure the 'passing' field is set to true.
ReisStop.Tijd	legs.stops.plannedDepartureTi me/ legs.stops.plannedArrivalTime	Both the arrival and departure times are now available for each stop.

QUESTIONS

If you have any questions regarding the new API, or the migration process feel free to e-mail us at nsr.api@ns.nl.