

# Version 1.0.0

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## Implementation requirements

- **Text Request protocol:** Webhooks are sent using the HTTP protocol, however only HTTPS endpoints are accepted in order to avoid MITM attacks.
- **Request method:** HTTP POST.
- **Valid response codes:** 200 OK. Anything else is considered to be an error, so message will re-try.
- **Request timeout:** 5 seconds. Webhook producers set a hard limit on the request timeout for each webhook. The response time for every webhook that hits your gateway should always be below this value no matter the number of concurrent webhooks your gateway needs to process. In general, you should respond as quick as possible and process persisted requests in a separate thread.
- **Verification:** PostNord signs every message with a secret key. It is a client's responsibility to verify signature in order to avoid Spoofing attacks.

## Message structure

*Message example*

```
{
  "messageId" : "c7b991fe-bfe1-4ce1-94b8-630638623f4d",
  "generatedAt" : "2024-05-28T13:38:51.218Z",
  "consignmentId" : "00873501093061599112",
  "item" : {
    "itemId" : "00873501093061599112",
    "eventCode" : {
      "id" : "21"
    },
  },
  "statusCode" : "DELIVERED",
  "eventTime" : "2024-05-28T13:37:51.221Z",
  "eventLocation" : {
    "name" : "PAKETBOX IMATRAGATAN 4",
    "city" : "Kista",
    "countryCode" : "SWE",
    "postCode" : "16478"
  },
  "references" : [ {
    "type" : "CU",
    "reference" : "4IH3FCUH1AID6N6TNTBTC9MVWS9ZPX"
  } ],
  "serviceCode" : {
    "code" : "19",
    "description" : "PostNord MyPack Collect"
  }
}
```

```

    },
    "eta" : {
      "dateTime" : "2024-05-30T13:00:00Z"
    },
    "measurements" : {
      "weight" : {
        "unit" : "kg",
        "value" : 6.25
      },
      "length" : {
        "unit" : "m",
        "value" : 0.46
      },
      "height" : {
        "unit" : "m",
        "value" : 0.23
      },
      "width" : {
        "unit" : "m",
        "value" : 0.32
      },
      "volume" : {
        "unit" : "m3",
        "value" : 0.035
      }
    },
    "acceptor" : {
      "name" : "Miss Spelling",
      "signatureReference" : "00873501093061599112"
    }
  }
}

```

Note, that each message contains only information about only one event. Full life cycle of a package can look like this:

#### Package events

```

{"messageId": "458d1be7-4634-4e32-be6d-
eee03dbc47c0", "generatedAt": "2024-04-
22T12:08:06.487956832Z", "consignmentId": "000111111111111110", "item"
: {"itemId": "000111111111111110", "eventCode": {"id": "68"}, "statusCode
": "INFORMED", "eventTime": "2024-04-
22T12:07:00Z", "eventLocation": {"name": "PostNord"}, "references": [{"typ
e": "ACD", "reference": "123456"}, {"type": "CU", "reference": "123456"}], "s
erviceCode": {"code": "19", "description": "PostNord MyPack Collect"}}

```

```
{"messageId": "67b813ab-bdf9-42fd-baee-04f266e4f18d", "generatedAt": "2024-04-22T17:56:24.224732304Z", "consignmentId": "000111111111111110", "item": {"itemId": "000111111111111110", "eventCode": {"id": "31"}, "statusCode": "EN_ROUTE", "eventTime": "2024-04-22T17:51:00Z", "eventLocation": {"name": "TAULOV TERMINAL", "city": "Fredericia", "countryCode": "DNK", "postCode": "7000"}, "references": [{"type": "ACD", "reference": "123456"}, {"type": "CU", "reference": "123456"}], "serviceCode": {"code": "19", "description": "PostNord MyPack Collect"}, "eta": {"dateTime": "2024-04-24T16:00:00Z"}, "measurements": {"weight": {"unit": "kg", "value": 3.450}, "length": {"unit": "m", "value": 0.321}, "height": {"unit": "m", "value": 0.238}, "width": {"unit": "m", "value": 0.261}, "volume": {"unit": "m3", "value": 0.02}}, "acceptor": {"signatureReference": "000111111111111110"}}
```

```
{"messageId": "10b6bbc9-9502-4533-bfe5-ad2751f8265d", "generatedAt": "2024-04-22T17:54:57.711809978Z", "consignmentId": "000111111111111110", "item": {"itemId": "000111111111111110", "eventCode": {"id": "31"}, "statusCode": "EN_ROUTE", "eventTime": "2024-04-22T17:52:43Z", "eventLocation": {"name": "TAULOV TERMINAL", "city": "Fredericia", "countryCode": "DNK", "postCode": "7000"}, "references": [{"type": "ACD", "reference": "123456"}, {"type": "CU", "reference": "123456"}], "serviceCode": {"code": "19", "description": "PostNord MyPack Collect"}, "eta": {"dateTime": "2024-04-24T16:00:00Z"}, "measurements": {"weight": {"unit": "kg", "value": 3.450}, "length": {"unit": "m", "value": 0.000}, "height": {"unit": "m", "value": 0.000}, "width": {"unit": "m", "value": 0.000}}, "acceptor": {"signatureReference": "000111111111111110"}}
```

```
{"messageId": "c3750275-104d-40e2-82cf-0c0cf5182d4c", "generatedAt": "2024-04-23T16:35:15.077573532Z", "consignmentId": "000111111111111110", "item": {"itemId": "000111111111111110", "eventCode": {"id": "z3D"}, "statusCode": "EN_ROUTE", "eventTime": "2024-04-23T16:29:00Z", "eventLocation": {"name": "TAULOV TERMINAL", "city": "Fredericia", "countryCode": "DNK", "postCode": "7000"}, "references": [{"type": "CU", "reference": "123456"}, {"type": "ACD", "reference": "123456"}], "serviceCode": {"code": "19", "description": "PostNord MyPack Collect"}, "eta": {"dateTime": "2024-04-25T16:00:00Z"}, "measurements": {"weight": {"unit": "kg", "value": 3.45}, "length": {"unit": "m", "value": 0.32}, "height": {"unit": "m", "value": 0.24}, "width": {"unit": "m", "value": 0.26}, "volume": {"unit": "m3", "value": 0.02}}, "acceptor": {"signatureReference": "000111111111111110"}}
```

```
{
  "messageId": "aaa950c5-8bf7-4482-8dc3-f86da0d90b9e",
  "generatedAt": "2024-04-23T16:34:47.826707522Z",
  "consignmentId": "000111111111111110",
  "item": {
    "itemId": "000111111111111110",
    "eventCode": { "id": "z3D" },
    "statusCode": "EN_ROUTE",
    "eventTime": "2024-04-23T16:29:01Z",
    "eventLocation": {
      "name": "TAULOV TERMINAL",
      "city": "Fredericia",
      "countryCode": "DNK",
      "postCode": "7000"
    },
    "references": [
      { "type": "CU", "reference": "123456" },
      { "type": "ACD", "reference": "123456" }
    ],
    "serviceCode": {
      "code": "19",
      "description": "PostNord MyPack Collect"
    },
    "eta": {
      "dateTime": "2024-04-25T16:00:00Z"
    },
    "measurements": {
      "weight": { "unit": "kg", "value": 3.450 },
      "length": { "unit": "m", "value": 0.321 },
      "height": { "unit": "m", "value": 0.238 },
      "width": { "unit": "m", "value": 0.261 },
      "volume": { "unit": "m3", "value": 0.02 }
    },
    "acceptor": { "signatureReference": "000111111111111110" }
  }
}
```

```
{
  "messageId": "bbf66091-3ee5-48f5-a2d1-db10f99afbe1",
  "generatedAt": "2024-04-24T01:19:14.200375214Z",
  "consignmentId": "000111111111111110",
  "item": {
    "itemId": "000111111111111110",
    "eventCode": { "id": "355" },
    "statusCode": "EN_ROUTE",
    "eventTime": "2024-04-24T01:16:00Z",
    "eventLocation": {
      "name": "HÄRRYDA PAKETTERMINAL",
      "city": "Landvetter",
      "countryCode": "SWE",
      "postCode": "43891"
    },
    "references": [
      { "type": "ACD", "reference": "123456" },
      { "type": "CU", "reference": "123456" }
    ],
    "serviceCode": {
      "code": "19",
      "description": "PostNord MyPack Collect"
    },
    "eta": {
      "dateTime": "2024-04-24T16:00:00Z"
    },
    "measurements": {
      "weight": { "unit": "kg", "value": 3.45 },
      "length": { "unit": "m", "value": 0.32 },
      "height": { "unit": "m", "value": 0.24 },
      "width": { "unit": "m", "value": 0.26 },
      "volume": { "unit": "m3", "value": 0.02 }
    },
    "acceptor": { "signatureReference": "000111111111111110" }
  }
}
```

```
{
  "messageId": "b32e0880-867b-4da5-ae8-6c5b7090e1af",
  "generatedAt": "2024-04-24T01:19:14.099565664Z",
  "consignmentId": "000111111111111110",
  "item": {
    "itemId": "000111111111111110",
    "eventCode": { "id": "31" },
    "statusCode": "EN_ROUTE",
    "eventTime": "2024-04-24T01:16:00Z",
    "eventLocation": {
      "name": "HÄRRYDA PAKETTERMINAL",
      "city": "Landvetter",
      "countryCode": "SWE",
      "postCode": "43891"
    },
    "references": [
      { "type": "ACD", "reference": "123456" },
      { "type": "CU", "reference": "123456" }
    ],
    "serviceCode": {
      "code": "19",
      "description": "PostNord MyPack Collect"
    },
    "eta": {
      "dateTime": "2024-04-24T16:00:00Z"
    },
    "measurements": {
      "weight": { "unit": "kg", "value": 3.45 },
      "length": { "unit": "m", "value": 0.32 },
      "height": { "unit": "m", "value": 0.24 },
      "width": { "unit": "m", "value": 0.26 },
      "volume": { "unit": "m3", "value": 0.02 }
    },
    "acceptor": { "signatureReference": "000111111111111110" }
  }
}
```

```
{
  "messageId": "6f9f1a2f-c6db-4f23-b69f-26a739e5e789",
  "generatedAt": "2024-04-24T04:33:38.70943522Z",
  "consignmentId": "000111111111111110",
  "item": {
    "itemId": "000111111111111110",
    "eventCode": { "id": "z114" },
    "statusCode": "EN_ROUTE",
    "eventTime": "2024-04-24T04:32:00Z",
    "eventLocation": {
      "name": "Göteborg",
      "countryCode": "SWE",
      "coordinates": {
        "latitude": 57.6885945,
        "longitude": 12.1588924
      }
    },
    "references": [
      { "type": "ACD", "reference": "123456" },
      { "type": "CU", "reference": "123456" }
    ],
    "serviceCode": {
      "code": "19",
      "description": "PostNord MyPack Collect"
    },
    "eta": {
      "dateTime": "2024-04-24T16:00:00Z"
    },
    "measurements": {
      "weight": { "unit": "kg", "value": 3.45 },
      "length": { "unit": "m", "value": 0.32 },
      "height": { "unit": "m", "value": 0.24 },
      "width": { "unit": "m", "value": 0.26 },
      "volume": { "unit": "m3", "value": 0.02 }
    },
    "acceptor": { "signatureReference": "000111111111111110" }
  }
}
```

```
{
  "messageId": "00006faf-ca71-4b3b-98bd-db7aa8a68157",
  "generatedAt": "2024-04-24T07:24:15.303421654Z",
  "consignmentId": "000111111111111110",
  "item": {
    "itemId": "000111111111111110",
    "eventCode": { "id": "1" },
    "statusCode": "AVAILABLE_FOR_DELIVERY",
    "eventTime": "2024-04-24T07:14:00Z",
    "eventLocation": {
      "name": "ICA MAXI KUNGÄLV",
      "city": "Kungälv",
      "countryCode": "SWE",
      "postCode": "44248"
    },
    "references": [
      { "type": "ACD", "reference": "123456" },
      { "type": "CU", "reference": "123456" }
    ],
    "serviceCode": {
      "code": "19",
      "description": "PostNord MyPack Collect"
    },
    "measurements": {
      "weight": { "unit": "kg", "value": 3.45 },
      "length": { "unit": "m", "value": 0.32 },
      "height": { "unit": "m", "value": 0.24 },
      "width": { "unit": "m", "value": 0.26 },
      "volume": { "unit": "m3", "value": 0.02 }
    },
    "acceptor": { "signatureReference": "000111111111111110" }
  }
}
```

```
{
  "messageId": "064b3e88-134b-435b-95b2-10f26b469938",
  "generatedAt": "2024-04-24T07:15:08.436575113Z",
  "consignmentId": "000111111111111110",
  "item": {
    "itemId": "000111111111111110",
    "eventCode": { "id": "z8H" },
    "statusCode": "OTHER",
    "eventTime": "2024-04-24T07:14:50.605Z",
    "eventLocation": { "countryCode": "SWE" },
    "references": [
      { "type": "ACD", "reference": "123456" },
      { "type": "CU", "reference": "123456" }
    ],
    "serviceCode": {
      "code": "19",
      "description": "PostNord MyPack Collect"
    },
    "eta": {
      "dateTime": "2024-04-24T16:00:00Z"
    },
    "measurements": {
      "weight": { "unit": "kg", "value": 3.45 },
      "length": { "unit": "m", "value": 0.32 },
      "height": { "unit": "m", "value": 0.24 },
      "width": { "unit": "m", "value": 0.26 },
      "volume": { "unit": "m3", "value": 0.02 }
    },
    "acceptor": { "signatureReference": "000111111111111110" }
  }
}
```

```
{"messageId":"d6b46b28-13e8-42a3-b93a-b1143d231697","generatedAt":"2024-04-24T07:58:09.927421633Z","consignmentId":"000111111111111110","item":{"itemId":"000111111111111110","eventCode":{"id":"z04"},"statusCode":"OTHER","eventTime":"2024-04-24T07:55:00Z","eventLocation":{"name":"PostNord","countryCode":"SWE"},"references":[{"type":"ACD","reference":"123456"}, {"type":"CU","reference":"123456"}],"serviceCode":{"code":"19","description":"PostNord MyPack Collect"},"measurements":{"weight":{"unit":"kg","value":3.45},"length":{"unit":"m","value":0.32},"height":{"unit":"m","value":0.24},"width":{"unit":"m","value":0.26},"volume":{"unit":"m3","value":0.02},"acceptor":{"signatureReference":"000111111111111110"}}}
```

```
{"messageId":"000c04e5-f463-4233-abce-1f313ff3fb11","generatedAt":"2024-04-24T09:56:19.484921326Z","consignmentId":"000111111111111110","item":{"itemId":"000111111111111110","eventCode":{"id":"21"},"statusCode":"DELIVERED","eventTime":"2024-04-24T09:42:00Z","eventLocation":{"name":"ICA MAXI KUNGÄLV","city":"Kungälv","countryCode":"SWE","postCode":"44248"},"references":[{"type":"ACD","reference":"123456"}, {"type":"CU","reference":"123456"}],"serviceCode":{"code":"19","description":"PostNord MyPack Collect"},"measurements":{"weight":{"unit":"kg","value":3.45},"length":{"unit":"m","value":0.32},"height":{"unit":"m","value":0.24},"width":{"unit":"m","value":0.26},"volume":{"unit":"m3","value":0.02},"acceptor":{"signatureReference":"000111111111111110"}}}
```

OpenAPI specification

```

openapi: "3.0.3"
info:
  title: Postnord Track and Trace incoming webhook spec
  version: 0.0.1
paths:
  # Since callbacks cannot exist without an initial request,
  # there is an explicit/webhook path with the TRACE method in the
  specification.
  /webhook:
    trace:
      tags:
        - postnord
        - tnt
        - webhook
      description: Fake path to describe webhook format
      responses:
        default:
          description: Dummy for the schema
      callbacks:
        webhook:
          /callbackUrl:
            post:
              requestBody:
                required: true
                description: Information about a TrackingEvent event
                content:
                  application/json:
                    schema:
                      $ref: "#/components/schemas/TrackingEvent"
              responses:
                "200":
                  description: Return a 200 status to indicate that
the data was received successfully
components:
  schemas:
    TrackingEvent:
      properties:
        messageId:
          type: string
          format: uuid
          example: "faeb7989-4fc6-46ff-a10b-ef15ae91d650"
          description: Unique message identifier
        generatedAt:
          type: string
          format: date-time
          description: Message timestamp
        consignmentId:
          type: string
          example: "00370730258024651229"
          description: Unique identifier assigned to a parcel or a
consignment for tracking purposes
      item:

```

```

    $ref: "#/components/schemas/ItemEvent"
  required:
    - messageId
    - generatedAt
    - consignmentId
  ItemEvent:
    required:
      - itemId
      - eventCode
      - statusCode
      - eventTime
      - eventLocation
    properties:
      itemId:
        type: string
        example: "00370730258024651229"
        description: Unique identifier assigned to a parcel
      eventCode:
        $ref: "#/components/schemas/EventCode"
      statusCode:
        $ref: "#/components/schemas/StatusCode"
      eventTime:
        type: string
        format: date-time
        description: Event timestamp
      eventLocation:
        $ref: "#/components/schemas/Location"
      references:
        type: array
        nullable: true
        uniqueItems: true
        items:
          $ref: "#/components/schemas/Reference"
      serviceCode:
        $ref: "#/components/schemas/ServiceCode"
      eta:
        nullable: true
        properties:
          dateTime:
            type: string
            format: date-time
            description: ETA date-time instant
        description: Estimated delivery date. It can vary from
event to event.
      measurements:
        nullable: true
        properties:
          weight:
            $ref: "#/components/schemas/Measurement"
          length:
            $ref: "#/components/schemas/Measurement"
          height:
            $ref: "#/components/schemas/Measurement"
          width:

```

```

        $ref: "#/components/schemas/Measurement"
        volume:
          $ref: "#/components/schemas/Measurement"
      acceptor:
        description: Name and signature reference(proof of
delivery) of the person accepted package
        nullable: true
        properties:
          name:
            nullable: true
            type: string
          signatureReference:
            type: string
      EventCode:
        required:
          - id
        properties:
          id:
            type: string
            example: "68"
          description: "Nordic event code"
      ServiceCode:
        nullable: true
        required:
          - code
          - description
        properties:
          code:
            type: string
            example: "19"
          description:
            type: string
            example: "PostNord MyPack Collect"
      Reference:
        required:
          - type
          - reference
        properties:
          type:
            type: string
            enum: [ ACD, ALQ, CU, FF, FLW, SRN, ZGI ]
            description: >
              * `ACD` - Additional reference number.
              * `ALQ` - Return ID.
              * `CU` - Consignment identifier, consignor assigned.
              * `FF` - Freight forwarder's reference number.
              * `FLW` - Flow reference number.
              * `SRN` - Shipment reference number.
              * `ZGI` - Pickup ID.
          reference:
            type: string
            example: "0010273214"
      Location:
        nullable: true

```

```

required:
  - country
properties:
  name:
    type: string
    example: "PAKETBOX IMATRAGATAN 4"
  street:
    type: string
    example: "Imatragatan 4"
  city:
    type: string
    example: "Kista"
  countryCode:
    type: string
    example: "SWE"
  postCode:
    type: string
    example: "16478"
  coordinates:
    $ref: "#/components/schemas/Coordinates"
Coordinates:
  nullable: true
  required:
    - latitude
    - longitude
  properties:
    latitude:
      type: number
      format: double
      example: 59.4110748
    longitude:
      type: number
      format: double
      example: 17.9174908
Measurement:
  required:
    - unit
    - value
  properties:
    unit:
      type: string
      example: "kg"
    value:
      type: number
      format: double
StatusCode:
  type: string
  enum:
    - CREATED
    - AVAILABLE_FOR_DELIVERY
    - DELAYED
    - DELIVERED
    - DELIVERY_IMPOSSIBLE
    - DELIVERY_REFUSED

```

```
- EXPECTED_DELAY
- INFORMED
- EN_ROUTE
- OTHER
- RETURNED
- RETURNED_DELIVERED
- STOPPED
description: >
* `CREATED` - The item information is just created
* `AVAILABLE_FOR_DELIVERY` - The item is available for
delivery
* `DELAYED` - The item is delayed in the course of transport
* `DELIVERED` - The item has been delivered to the final
recipient
* `DELIVERY_IMPOSSIBLE` - The item couldn't be delivered
* `DELIVERY_REFUSED` - The item was refused by consignee
* `EXPECTED_DELAY` - The item has an expected delayed in the
course of transport
* `INFORMED` - The consignor has sent in pre-information
about a transport
* `EN_ROUTE` - The item is transported on schedule
* `OTHER` - Undefined status
* `RETURNED` - The shipment has been returned
* `RETURNED_DELIVERED` - The shipment has been partially
returned
* `STOPPED` - The item has been stopped in the course
transportation
```

## Public event codes

Table 1. Public events and description

Code	Status	Description
1	AVAILABLE_FOR_DELIVERY	The shipment item has been delivered to a service point.
101	DELAYED	Delayed in transit.
109	DELIVERY_IMPOSSIBLE	Delivery was not possible. The recipient will get a notification with information on where the shipment item will be available for collection.
110	DELIVERY_IMPOSSIBLE	Delivery impossible, recipient unknown.
111	DELIVERED	The shipment item has been delivered.
112	STOPPED	The shipment item is being held at a distribution terminal awaiting the booked delivery date, or awaiting an agreement of delivery with the recipient.
113	EN_ROUTE	The delivery of the shipment item is in progress.
114	DELIVERED	Delivered, waiting for signature.
12	EN_ROUTE	The shipment item has been cleared by customs.
126	STOPPED	The shipment item is being customs cleared by us.
127	EN_ROUTE	The shipment item has been routed to a service point.
128	EN_ROUTE	Awaiting customs clearance.
13	EN_ROUTE	The shipment item has been picked-up for transportation.
15	EN_ROUTE	The shipment item has been consolidated.
17	STOPPED	Customs clearance refused.
18	OTHER	The shipment item has been damaged.
194	EXPECTED_DELAY	Delayed at terminal.
20	DELAYED	The shipment item has been delayed.
206	EXPECTED_DELAY	Preloaded, to be transported the next working day.
209	EN_ROUTE	The shipment item will be delivered according to arrangement with the recipient.
21	DELIVERED	The shipment item has been delivered.
210	DELIVERY_IMPOSSIBLE	Unsuccessful delivery attempt.
211	DELIVERY_IMPOSSIBLE	Unsuccessful delivery, business closed at recipient.
213	DELIVERY_IMPOSSIBLE	Unsuccessful delivery, recipient has moved.
215	AVAILABLE_FOR_DELIVERY	The shipment item is available for delivery, awaiting payment.
218	STOPPED	The shipment item has been damaged.
22	DELIVERED	The shipment item has been delivered with Power Of Attorney.
220	EXPECTED_DELAY	The shipment item has been sent to an incorrect destination.
232	STOPPED	The shipment item has been suspended from import. Pending further investigation.
233	INFORMED	The shipment contained more items than ordered in the collection request.
234	EXPECTED_DELAY	The address is incorrect.
236	EXPECTED_DELAY	The shipment item has not been collected by the recipient. Waiting for instructions from the sender.
241	STOPPED	Waiting for missing export document.
247	INFORMED	The shipment item was not available for pickup.
253	DELIVERY_REFUSED	The shipment item was refused by recipient.
266	EXPECTED_DELAY	Force majeure.
270	DELAYED	The delivery of the shipment item has been delayed with one workday.
271	STOPPED	Waiting for payment of taxes and duties
273	DELAYED	Delayed operation.
274	EXPECTED_DELAY	The address is incomplete.
282	DELIVERY_REFUSED	Signature refused.
284	DELIVERY_REFUSED	The delivery was refused, as the shipment item had not been ordered.

Code	Status	Description
287	OTHER	Missing, contents.
298	DELIVERY_REFUSED	The delivery was refused as a damage was found on the shipment item.
301	STOPPED	Import documents are missing. The recipient will be contacted.
31	EN_ROUTE	The shipment item is under transportation.
313	RETURNED	The shipment item was returned by recipient.
314	DELAYED	Delayed at origin.
318	EXPECTED_DELAY	Will be delivered the next day of distribution.
323	RETURNED	The shipment item will be returned.
339	OTHER	The shipment item cannot be picked up at the arranged time because of a change of schedule.
343	EXPECTED_DELAY	Missing, incorrect, incomplete or illegible export documentation or label.
344	INFORMED	The shipment item has been dropped off after latest drop-off time.
35	EN_ROUTE	The shipment item has left the country of the sender.
354	DELIVERY_IMPOSSIBLE	Delivery not completed, business closed on national/regional holiday.
355	EN_ROUTE	The shipment item is under transportation.
41	EN_ROUTE	The shipment item has been handed over to a partner for transportation to the final destination.
44	EN_ROUTE	The shipment item has been incorrectly sorted.
48	EN_ROUTE	The shipment item has been loaded.
53	INFORMED	The shipment was not complete upon pickup.
6	OTHER	Recipient has booked delivery via rural post.
63	OTHER	The sender was not available upon pickup.
68	INFORMED	We have received a notification from your shipper that they are preparing an item for you. The tracking information will be updated when the parcel is handed over to PostNord.
71	INFORMED	The shipment item is ready for transportation.
74	EN_ROUTE	The transport of the shipment item has started.
75	EN_ROUTE	The shipment item will be transported to a new recipient on sender's request.
8	EN_ROUTE	The shipment item has been cleared by customs.
88	DELIVERED	Insufficient/Incomplete shipment.
90	STOPPED	The shipment item has been stopped during transportation.
91	STOPPED	The shipment item has been stored.
z01	OTHER	A letter notification has been sent to the recipient.
z02	OTHER	Notified by phone, the shipment item will be delivered according to arrangement.
z03	OTHER	Unable to notify the recipient by phone. Notification will be performed in an other way.
z04	OTHER	A text message notification has been delivered to the recipient.
z05	OTHER	Unable to notify the recipient via SMS.
z06	OTHER	Unable to notify the recipient via SMS.
z07	OTHER	A notification has been sent to the recipient.
z08	OTHER	E-mail notification has been sent to the recipient.
z09	OTHER	Unable to notify the recipient by e-mail.
z10	DELIVERY_IMPOSSIBLE	Unable to deliver. The street door was locked and the recipient could not be reached.
z103	OTHER	Recipient identified via eID.
z104	EN_ROUTE	Delivery option made by receiver.
z105	EN_ROUTE	Redirect canceled.
z106	EN_ROUTE	Redirected to neighbor.
z107	DELIVERY_IMPOSSIBLE	Unsuccessful delivery attempt. New delivery attempt next working day.
z109	OTHER	Additional service not performed.
z110	EN_ROUTE	Pick-up at servicepoint, selected by the receiver.
z114	EN_ROUTE	The shipment item has arrived at the distribution terminal.

Code	Status	Description
z115	OTHER	Shipping information have been received.
z12	INFORMED	The shipment item was not available for pick up.
z19	EXPECTED_DELAY	The shipment item has an incorrect postal code.
z1C	EN_ROUTE	The shipment item will be delivered according to arrangement with the sender.
z1E	INFORMED	Collection request cancelled - no reason given.
z1F	OTHER	The shipment Item has been forwarded. Track and trace is not available anymore.
z1I	OTHER	The payment has been accepted. Expect your shipment within 2-3 days.
z1N	RETURNED	Customs VAT has already paid.
z1X	INFORMED	Refund requested by customer.
z1Y	INFORMED	Refund performed.
z1Z	INFORMED	The sender's shipment has expired.
z20	EXPECTED_DELAY	The delivery of the shipment item might be delayed because the delivery address is a PO box address.
z21	EXPECTED_DELAY	The shipment item has been reconsigned due to physical constraints.
z22	EXPECTED_DELAY	The shipment item does not comply with the service terms and might be delayed.
z23	EXPECTED_DELAY	The shipment item has an invalid service or additional service code.
z24	STOPPED	The shipment item has been stopped due to insufficient packaging.
z25	STOPPED	Shipment item stopped, contains dangerous goods.
z26	STOPPED	Transport stopped due to required inspection.
z28	EN_ROUTE	Item has been received by rural mail carrier for delivery the next work day.
z29	DELIVERY_IMPOSSIBLE	The shipment item was not delivered; recipient unable to present national ID.
z2C	OTHER	Delivery option can be changed.
z2E	INFORMED	Collection failure.
z2F	OTHER	Prolonged retention time ordered.
z2H	OTHER	Other parcelbox booked.
z2K	OTHER	Equipment to assist the delivery not available.
z30	EN_ROUTE	The shipment item has been dropped off by sender.
z31	EN_ROUTE	The shipment item is under transportation.
z34	STOPPED	The shipment item has unacceptable packaging. Sender needs to repackage.
z35	DELIVERED	The shipment item has been delivered with Power Of Attorney.
z36	OTHER	The shipment item is being delivered to a recipient at a residential address.
z37	AVAILABLE_FOR_DELIVERY	The shipment item will be delivered today.
z38	DELIVERY_IMPOSSIBLE	Recipient not present.
z39	DELIVERY_IMPOSSIBLE	The recipient could not be found by driver.
z3D	EN_ROUTE	The shipment item is under transportation.
z3E	INFORMED	Cancellation not possible.
z3G	OTHER	Information to the driver added by the recipient.
z3J	OTHER	Parcel too large
z3L	STOPPED	Your parcel has unfortunately been lost and therefore cannot be delivered. Contact the sender regarding how to proceed.
z40	AVAILABLE_FOR_DELIVERY	Pick-up at PostNord, selected by receiver.
z41	DELIVERY_IMPOSSIBLE	Recipient not present; on holiday.
z43	OTHER	Unallowed cash on delivery amount.
z44	DELIVERY_IMPOSSIBLE	The shipment item was not delivered; recipient did not meet the delivery requirements.
z45	OTHER	The shipment item was not ready for pick-up.
z4A	STOPPED	Waiting for missing ADR documents.
z4D	EN_ROUTE	The shipment item has been picked-up for transportation.
z4E	INFORMED	Collection request rejected.
z4F	OTHER	The shipment item has been loaded.

Code	Status	Description
z4H	OTHER	Handover of parcel in Parcelbox.
z4J	OTHER	Suggested delivery time
z4L	STOPPED	Your parcel has unfortunately been lost and therefore cannot be delivered. Contact the sender regarding how to proceed.
z4Q	EN_ROUTE	Self-service drop-off. The receipt will be sent after processing at the service point.
z53	INFORMED	Electronic shipping instruction created.
z54	INFORMED	Collection request ordered.
z55	OTHER	The recipients address has been corrected.
z5A	INFORMED	The shipment was not picked up. The driver arrived to late.
z5D	INFORMED	Item ID assigned to the collection request; no pick-up scan so far.
z5E	EN_ROUTE	Shipment item could not be delivered via parcel locker.
z5G	INFORMED	Pickup Booked.
z5H	OTHER	No available box
z5Q	EN_ROUTE	The shipment item is being customs cleared.
z61	STOPPED	Movement stopped, prohibited content.
z62	OTHER	Driver's notification unsuccessful.
z63	EN_ROUTE	The shipment item is under transportation.
z64	EN_ROUTE	The shipment item has been received by PostNord.
z65	EN_ROUTE	The shipment item has arrived at the distribution terminal.
z66	AVAILABLE_FOR_DELIVERY	A notification has been left in the recipient's post-office box.
z67	RETURNED	The shipment item will be returned to sender due to exceeded service terms and conditions.
z68	DELIVERY_IMPOSSIBLE	The recipients goods reception is closed today.
z6A	INFORMED	The shipment was not picked up.
z6C	DELIVERED	Manually Terminated.
z6D	EN_ROUTE	Pick-up scan recorded.
z6H	OTHER	Not allowed service in Parcelbox.
z6J	OTHER	The address is incomplete.
z6L	RETURNED	Unfortunately, your parcel has been damaged and is therefore being returned to the sender. Please contact the sender regarding how to proceed.
z70	DELIVERY_IMPOSSIBLE	The COD amount has not been paid.
z71	EXPECTED_DELAY	To be delivered on Monday.
z72	EXPECTED_DELAY	To be delivered on Tuesday.
z73	EXPECTED_DELAY	To be delivered on Wednesday.
z74	EXPECTED_DELAY	To be delivered on Thursday.
z75	EXPECTED_DELAY	To be delivered on Thursday.
z76	DELIVERED	The shipment item has been delivered with Power Of Attorney.
z77	STOPPED	The shipment item has been impounded.
z79	AVAILABLE_FOR_DELIVERY	The shipment item has been delivered to a service point.
z7A	INFORMED	Customer not informed about collection request.
z7D	INFORMED	Collection request cancelled due to invalid data.
z7O	OTHER	Return has been ordered.
z7P	OTHER	Change of cash on delivery amount has been ordered.
z7Q	OTHER	Change of retention time at the Service point has been ordered.
z80	EN_ROUTE	The shipment item has been redirected. Reason unknown.
z81	OTHER	A change in the shipping instructions (CSI) has been requested. Please, refer to additional services information for details.
z82	OTHER	A text message notification has been sent to the recipient.
z83	OTHER	Inadequate palletising/packaging. Registered at pickup.
z85	STOPPED	The shipment item does not comply with the service terms.

Code	Status	Description
z86	OTHER	New Address - The request for change in shipping instructions could not be completed.
z87	OTHER	Forced Return - Request for change in shipping instructions could not be completed.
z88	OTHER	Ext. Ret. Period - Request for change in shipping instructions could not be completed.
z89	OTHER	New Name - Request for change in shipping instructions could not be completed.
z8B	STOPPED	The shipment item has been stopped by PostNord, please contact the sender for more information.
z8C	DELIVERY_IMPOSSIBLE	We have tried to deliver a +20 kg shipment item to you. Please contact us to agree on a date for collection.
z8D	INFORMED	Collection request cancelled due to that the pickup area does not support collection request.
z8F	OTHER	Change servicepoint
z8L	OTHER	Change of recipient information has been ordered.
z8M	OTHER	Delivery to new address has been ordered.
z90	OTHER	COD (change/delete) - Request for change in shipping instructions could not be completed.
z91	OTHER	New Delivery - Request for change in shipping instructions could not be completed.
z92	OTHER	Unable to notify the recipient by phone. A notification has been sent to the recipient by letter.
z93	AVAILABLE_FOR_DELIVERY	Delivery undone.
z94	EN_ROUTE	The transport of the shipment item has started in the country of the sender.
z95	EN_ROUTE	The shipment item has arrived at the country of destination.
z96	DELIVERED	The shipment item has been delivered to the recipient's mailbox.
z9B	DELIVERED	The shipment item has been delivered at the recipient's door.
z9C	OTHER	Shipping label printed.
z9D	INFORMED	Collection request cancelled due to that the pickup depot does not support the the ordered service.
z9F	OTHER	Change servicepoint
z9J	DELIVERY_IMPOSSIBLE	Arrived at pick-up point, the recipient is notified.
z9N	OTHER	The shipment item has been delivered
z9O	OTHER	Remember to pay or decline your VAT and customs invoice(import shipment).
z9P	OTHER	Remember to pay or decline your VAT and customs invoice(import shipment).

## Concurrency limits

Instead of rate limiting, webhook receivers can set hard concurrency limits, i.e. in flight requests capacity.

That way receivers can appropriately limit incoming load according to the actual processing capabilities.

## Webhook Security

### Spooing attacks

Because of the way webhooks work, attackers can impersonate services by simply sending a fake webhook to an endpoint: it's just an HTTP POST from an unknown source.

## Preventing spoofing attacks

There are a few ways to prevent or reduce the likelihood of spoofing attacks, though the recommended (and wholly sufficient) way is by signing webhooks. This is **the only** supported authentication mechanism provided by PostNord.

For more information, please refer to the Verifying Webhooks section.

## Authentication tokens

Like normal HTTP requests, webhooks can authenticate using a pre-shared authentication token, HTTP Basic Auth, or any other common HTTP authentication method. **This is not recommended** for a variety of reasons, but the main one is because of how webhooks work, the server can potentially be tricked to send the request to the wrong destination, **exposing the token**.

## IP allow list

An IP allow list is an insecure mechanism when used on its own, as it's not meant for authentication. PostNord supports sending from a specific set of source IPs. The reason why PostNord supports it, is so that webhook consumers that have firewalls can add PostNord to the allow list to ensure delivery.

Relying on it however is insufficient, because provided IPs might be shared with other machines using the same cloud provider. Even when own private IPs are used, they could be accidentally released back to the cloud provider which can then be used to send malicious requests, and last but not least, this means that one customer of the service can trigger webhooks affecting another customer (because the sender will be from the same set of IP addresses) making the security insufficient.

## Replay attacks

A replay attack is an attack when a valid data transmission is duplicated maliciously or fraudulently.

A bad actor can intercept (and potentially modify) a request before it reaches its destination, then replay it. Even if the payload is encrypted or signed and can't be edited, simply repeating a request can cause a lot of problems (e.g. duplicating a purchase event).

## Preventing replay attacks

### *Timestamps in the signature*

To mitigate such attacks, PostNord includes a timestamp in the webhook-signature header. Because this timestamp is part of the signed payload, it is also verified by the signature, so an attacker can't change the timestamp without invalidating the signature. If the signature is valid but the timestamp is too old, you can have your application reject the payload.

### *Idempotency*

With respect to APIs, idempotence means that you would get the same result whether you make an identical API call once or many times. If your endpoints are idempotent, any webhook requests will only be processed once, **even if they are received multiple times**. To help clients to identify already processed messages PostNord provides unique message ID in the header.

## Man-in-the-middle attack

Man-in-the-middle (MITM) attack is a form of eavesdropping in which the attacker secretly relays and possibly alters the communications between two parties who believe they are directly communicating with each other.

## Preventing man-in-the-middle attacks

The most common way to avoid a MITM attack is to always use HTTPS URLs to ensure that the request is encrypted and the connection is verified.

## Notes about mTLS

By default, the TLS protocol only proves the identity of the server to the client, and the authentication of the client to the server is left to the application layer. TLS also offers client-to-server authentication using client-side certificates.

While it solves most of the above issues, it's rarely used as it puts a massive burden on webhook consumers. The problem is that it requires provisioning of client certifications for usage with the webhook receiver, and requires the consumer to know how to handle mTLS which is not possible in most managed cloud environments.

In addition, unless a specific certificate is created for each endpoint, it suffers from the same issue that the "IP allow list" solution suffers from

above: different customers of the same webhook service can maliciously trigger authenticated webhooks to one another.

## Verifying Webhooks

### Header structure

Before you can verify signatures, you need to retrieve your endpoint's secret from PostNord.

Each endpoint gets a unique secret key. If you use multiple endpoints, you must obtain a secret for each one you want to verify signatures on.

The X-Webhook-Signature header included in each signed request contains following parts separated by ,(comma):

- id=: a unique message identifier(case sensitive) for the webhook message. This identifier is unique across all messages, but will be the same when the same webhook is being resent (e.g. due to a previous failure).
- t=: Event timestamp in seconds since epoch.
- s=: the Base64(without padding) encoded signature.

#### *Webhook signature example*

X-Webhook-Signature:

id=D\_GScL1qTM6Qi9G9cKXjQA,

t=1685624751,

s=Fl5jgdWWT0ik2qNeOcnAZNj63L59BaWXdxA8HZkL0c



Note that newlines have been added for clarity, but a real X-Webhook-Signature header is on a single line.

## Constructing the signed content

In order to verify signature you need to reconstruct signed content.

### ***Step 1: Extract the id, timestamp and signature from the header***

Split the header, using the , character as the separator, to get a list of elements. Then split each element, using the = character as the separator, to get a prefix and value pair.

The value for the prefix id corresponds to message ID, t corresponds to the timestamp, and s corresponds to the signature. You can discard all other elements.

## Step 2: Prepare the *signedPayload* string

The signedPayload string is created by concatenating:

- Message ID
- Full-stop(period) character .
- The timestamp (as a string)
- Full-stop(period) character .
- The actual JSON payload (that is, the request body)

## In code, it will look something like this:

### *Parsing signature*

```
void signatureVerification() throws Exception {
    var headerContent =
        "id=D_GScL1qTM6Qi9G9cKXjQA,t=1685624751,s=r5xJLKXLIUmlVBi_63knCuaeYCVNCWk0ua
        Gii3xWsqw";
    var messageBody = "{ \"hello\": \"world\" }";

    var parts = Arrays.stream(headerContent.split(","))
        .map(s -> s.split("="))
        .filter(pair -> pair.length == 2)
        .collect(Collectors.toMap(pair -> pair[0], pair -> pair[1]));
    var id = Objects.requireNonNull(parts.get("id"), "ID not found in the header: " +
        headerContent);

    var timestamp = Objects.requireNonNull(parts.get("t"), "Timestamp not found in the
        header: " + headerContent);
    var timestampInstant = Instant.ofEpochSecond(Long.parseLong(timestamp));
    if (timestampInstant.isBefore(OLDEST_TIMESTAMP)) {
        // In real scenario, even if you discard messages you should answer with OK/200
        throw new IllegalArgumentException("Message is too old!");
    }

    var signature = Objects.requireNonNull(parts.get("s"), "Signature not found in the header: "
        + headerContent);

    var signedPayload = String.join(".", id, timestamp, messageBody);

    var realSignature = sign(signedPayload, ENDPOINT_SECRET);
    if (!realSignature.equals(signature)) {
        throw new IllegalArgumentException("Wrong signature!");
    }
}
```

Where body is the raw body of the request. The signature is sensitive to any changes, so even a small change in the body will cause the signature to be

completely different. This means that you should not change the body in any way before verifying.

## Determining the expected signature

PostNord uses an HMAC with SHA-256 to sign its webhooks. So to calculate the expected signature, you should HMAC the signedPayload.

For example, this is how you can calculate the signature in Java:

*Signature verification*

```
private String sign(String data, String key) throws Exception {
    var keyBytes = BASE64_URL_DECODER.decode(key);
    var mac = Mac.getInstance(HmacSHA256);

    mac.init(new SecretKeySpec(keyBytes, HmacSHA256));
    var signatureBytes = mac.doFinal(data.getBytes());

    return BASE64_URL_ENCODER.encodeToString(signatureBytes);
}
```

This generated signature should match the one in the X-Webhook-Signature.