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# **GTIN Check API**

## **Developers' guide**

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## Introduction

The GS1 UK GTIN Check Application Programming Interface Service (referred to as “the API” in this document) is a service that is made available to specific GS1 UK members with the aim of fast-checking thousands of barcoded product data.

A GTIN (Global Trade Item Number) is the name of the barcode value uniquely identifying each product. Previous names for the GTIN are EAN (European Article Number) in Europe and UPC (Universal Product Code) in North America.

The API works to test:

1. That each GTIN has the correct integrity; that is, it is the right length, in the correct format, and with the correct syntactical makeup.
2. The GTIN's GS1 Company Prefix (GCP) value exists and is assigned to a valid GS1 member.
3. Check validated GTINs via the GS1 Global Product Registry for any product data held for that GTIN – if there is a GTIN match then can we share this additional product information (up to 6 attributes) via the API.

The API allows thousands of GTIN values to be sent and tested in real-time, although it is recommended that users keep to the stated usage limits (see Technical Introduction) to maintain performance.

The interface uses standard web API principles:

1. A POST request interface over secure web HTTP
2. Data values accepted in JavaScript Object Notation (JSON) format
3. A response also in JSON format

In order to provide security and controlled access, only members who have been provided with an appropriate 'key' may access the service at this time.

The experimental nature of this service means that users must accept occasional errors and performance issues from time to time. Therefore, this checker is provided on an 'as-is' basis.

## Who is this document aimed at?

This is a technical document aimed at web and application developers who would connect their applications to this service in order to test thousands of barcoded product data. This document assumes knowledge of writing applications that can call API services across the internet.

## Technical Introduction

GTIN Check's API is a standard RESTful API provided as a secure HTTPS web service. The API talks 'JSON' and uses the 'Authorization' request header for authentication.

The API accepts a maximum request payload of 200KB (just over 10,000 GTINs) in a single request, but we strongly advise that you send a payload of no more than 1,000 GTINs as the service has optimised throughput for payloads up to this size. Any larger and it must batch GTINs in groups of 1,000 in its internal validation process which adds to the overhead and reduces the 'GTINs/second' throughput.

Any payload over 200KB (that is, 200,000 characters in the request body) is rejected with an HTTP 413 'Payload Too Large' error.

## Preparing a request to the API service

The official web address <https://gtincheck.gs1uk.org> is where you can find GTIN Check. Before you can POST to the service, you need to construct a JSON-formatted structured data document with a list of GTINs in a JSON (JavaScript Object Notation) array called "gtins." See [Appendix 1](#) for a working example.

To post the request, you need to follow web standards for an HTTP POST request. An example using the CURL process in the popular PHP web programming language is shown in [Appendix 2](#).

Set the:

1. **Request type** to "POST"
2. **Content-Type** to "application/json"
3. **Authorization** to "Bearer <your authentication key>" e.g.: "Bearer r9fg9gfhe9h97tgvv79h979h" noting that 'Bearer' starts with a capital B, and there is a space between 'Bearer' and your authentication key.
4. **Content-Length** to the count of characters that make up the Request JSON.
5. **Request URL (Uniform Resource Locator)** to: "<https://gtincheck.gs1uk.org>"

## Working with the API Response

The response from the API contains data in three groups (see [Appendix 1](#) for an example response):

1. **"GTINTestResults"**: A JSON array of individual elements making up the test results for that GTIN.
2. **"Summary"**: Four values which summarise the outcome of the tests:
  - a. **"TotalGTINCount"**: An integer value confirming the number of GTINs sent to be tested.
  - b. **"TotalGS1UKGTINS"**: An integer value confirming the number of GTINs licensed from GS1 UK.
  - c. **"TotalGTINsWithoutGCPOwner"**: An integer value where no owner was found.
  - d. **"TotalGTINErrorCount"**: An integer count of GTINs found to be in error.
  - e. **"ProcessingTimeSeconds"**: The amount of time that the API took to internally process the requested list. This includes time spent calling and waiting for upstream data sources to respond, but excludes the time taken to fully upload the request to the API, and the time taken to download the results.
3. **"APIMessage"**: A response from the API application itself which uses the HTTP status codes. If the StatusCode message is any other than "200" then the results data in the Response message cannot be trusted.
  - a. **"StatusCode"**: 200 for success, other values for problems encountered by the API.
  - b. **"Message"**: "SUCCESS" for a successful API processing session, other messages will reveal if the API encountered trouble such as accessing its database. Therefore, this response is separate from the Apache web server's own HTTP status.

## Understanding the Response 'CertaintyValue'

The value in format ranges between 0 and 3 where:

- 0: GTIN has failed its integrity check.
- 1: GTIN passes integrity check / there is no matching GCP (Global Company Prefixes) in our License Registry.
- 2: GTIN passes integrity check / GCP licensee found in our License Registry / there is no GTIN matching records in our Product Registry.
- 3: GTIN passes integrity check / GCP licensee found in our License Registry / matching GTIN product record has been found in our Product Registry.

## Appendix 1: Example JSON-formatted POST request body, and API Response

### Example request:

These versions use a 'line number' in the name part of each name/value pair to identify each test. You can use any identifier - you can specify an incremental number in your API client, or you may wish to use a unique row-id specified in your data source. This design allows you to match the input tests with the output.

```
{
  "gtins": [
    "05420071702255",
    "06294003599034",
    "06294003599003",
    "06294003568665"
  ]
}
```

### Example response to above request:

```
{
  "GTINTestResults": [
    {
      "GTIN": "05420071702255",
      "CertaintyValue": 3,
      "GCPCode": "54200717",
      "Status": "ACTIVE",
      "IntegrityCheck": "INTEGRITY GOOD",
      "IntegrityCode": 0,
      "GCPOwner": "DE LAURIER BVBA",
      "GS1Territory": "GS1 Belgium & Luxembourg",
      "GPCCategoryCode": "10000813",
      "GPCCategoryName": "Body Washing Other",
      "BrandName": "Isabelle Laurier (nl-BE),Isabelle Laurier (fr-BE)",
      "ProductDescription": "ISABELLE LAURIER Gommage de sel Pamplemousse&Fenouil 500g (fr-BE),ISABELLE LAURIER Saltscrub Grapefruit&Fennel 500g (en-GB),ISABELLE LAURIER Zoutscrub Pompelmoes&Venkel 500g (nl-BE),ISABELLE LAURIER Salz-Peeling Pampelmuse&Fenchel 500g (de-DE)",
      "ProductImageUrl":
https://dam.gs1belu.org/originals/5425013550000%2F652e198068864eaba006e8fbf8eb377c%2F05420071702255\_A1C1.jpg (en-GB)",
      "NetContent": "1.0 H87",
      "CountryOfSaleCode": "BE"
    },
    {
      "GTIN": "06294003599034",
      "CertaintyValue": 3,
      "GCPCode": "62940035",
      "Status": "INACTIVE",
      "IntegrityCheck": "INTEGRITY GOOD",
      "IntegrityCode": 0,
      "GCPOwner": "Nestle Middle East FZE.",
      "GS1Territory": "GS1 UAE",
    }
  ]
}
```

```

    "GPCCategoryCode": "10000045",
    "GPCCategoryName": "Chocolate and Chocolate/Sugar Candy Combinations - Confectionery",
    "BrandName": "NESTLE (de-WW),NESTLE (en-WW),NESTLE (fr-WW)",
    "ProductDescription": "KitKat® Senses Hazelnut Crunch Tafel 120g (de-WW),KitKat® Senses Hazelnut Crunch Tablet 120g (en-WW),KitKat® Senses Hazelnut Crunch Tablette 120g (fr-WW)",
    "ProductImageUrl": "https://nestlecontenthub-dam.esko-saas.com/mediabeacon/servlet/dload?apikey=4EA6AC6F-E83F-4C53-9150-C7B7BEB79708&id=203954085 (de-WW),https://nestlecontenthub-dam.esko-saas.com/mediabeacon/servlet/dload?apikey=4EA6AC6F-E83F-4C53-9150-C7B7BEB79708&id=203954085 (en-WW),https://nestlecontenthub-dam.esko-saas.com/mediabeacon/servlet/dload?apikey=4EA6AC6F-E83F-4C53-9150-C7B7BEB79708&id=203954085 (fr-WW)",
    "NetContent": "120 GRM",
    "CountryOfSaleCode": "WW"
  },
  {
    "GTIN": "06294003599003",
    "CertaintyValue": 3,
    "GCPCode": "62940035",
    "Status": "INACTIVE",
    "IntegrityCheck": "INTEGRITY GOOD",
    "IntegrityCode": 0,
    "GCPOwner": "Nestle Middle East FZE.",
    "GS1Territory": "GS1 UAE",
    "GPCCategoryCode": "10000045",
    "GPCCategoryName": "Chocolate and Chocolate/Sugar Candy Combinations - Confectionery",
    "BrandName": "NESTLE (de-WW),NESTLE (en-WW),NESTLE (fr-WW)",
    "ProductDescription": "KitKat® Senses Cookie Crumble Tafel 120g (de-WW),KitKat® Senses Cookie Crumble Tablet 120g (en-WW),KitKat® Senses Cookie Crumble Tablette 120g (fr-WW)",
    "ProductImageUrl": "https://nestlecontenthub-dam.esko-saas.com/mediabeacon/servlet/dload?apikey=4EA6AC6F-E83F-4C53-9150-C7B7BEB79708&id=203954083 (de-WW),https://nestlecontenthub-dam.esko-saas.com/mediabeacon/servlet/dload?apikey=4EA6AC6F-E83F-4C53-9150-C7B7BEB79708&id=203954083 (en-WW),https://nestlecontenthub-dam.esko-saas.com/mediabeacon/servlet/dload?apikey=4EA6AC6F-E83F-4C53-9150-C7B7BEB79708&id=203954083 (fr-WW)",
    "NetContent": "120 GRM",
    "CountryOfSaleCode": "WW"
  },
  {
    "GTIN": "06294003568665",
    "CertaintyValue": 3,
    "GCPCode": "62940035",
    "Status": "INACTIVE",
    "IntegrityCheck": "INTEGRITY GOOD",
    "IntegrityCode": 0,
    "GCPOwner": "Nestle Middle East FZE.",
    "GS1Territory": "GS1 UAE",
    "GPCCategoryCode": "10000045",
    "GPCCategoryName": "Chocolate and Chocolate/Sugar Candy Combinations - Confectionery",
    "BrandName": "NESTLE (de-WW),NESTLE (en-WW),NESTLE (es-WW),NESTLE (fr-WW)",
    "ProductDescription": "KitKat® Senses Mini Moments 203g (de-WW),KitKat® Senses Mini Moments 203g (en-WW),KitKat® Senses Mini Moments 203g (es-WW),KitKat® Senses Mini Moments 203g (fr-WW)",
    "ProductImageUrl": "",
    "NetContent": "203 GRM",
    "CountryOfSaleCode": "WW"
  }
],

```

```
"Summary": {  
  "TotalGTINCount": 4,  
  "TotalGS1UKGTINS": 0,  
  "TotalGS1GlobalGTINS": 4,  
  "TotalGTINsWithoutGCPOwner": 0,  
  "TotalGTINErrorCount": 0,  
  "ProcessingTimeSeconds": 0,  
  "LRCallCount": 4  
},  
"APIMessage": {  
  "StatusCode": 200,  
  "Message": "SUCCESS"  
}  
}
```

## Appendix 2: Example call to the API using CURL in PHP5 or PHP7

In this example, the JSON-formatted data (such as that shown in Appendix 1) is stored in variable `$data_string`, and `$results_string` contains the JSON response JSON

```
$ch = curl_init(' https://gtincheck.gs1uk.org ');

curl_setopt($ch, CURLOPT_CUSTOMREQUEST, "POST");

curl_setopt($ch, CURLOPT_POSTFIELDS, $data_string);

curl_setopt($ch, CURLOPT_RETURNTRANSFER, true);

curl_setopt($ch, CURLOPT_HTTPHEADER, array(
    'Content-Type: application/json',
    'Content-Length: ' . strlen($data_string))
);

$results_string = curl_exec($ch);
```



### Appendix 3: Error codes and messaging

Error code	Proposed GTIN check message	GS1 Advice for action
104	Invalid length: GS1 GTINs can be 8, 12, 13 or 14 digits in length	Check the GTIN with the GTIN Allocator. This product cannot be listed
102	Alphabetic digits: A GTIN may only contain numeric digits	Check the GTIN with the GTIN Allocator. This product cannot be listed
103	Incorrect check digit: The final digit of a GTIN is a check digit that is calculated from the preceding digits	Check the GTIN with the GTIN Allocator. Either the check digit or another number is incorrect. This product cannot be listed
201	This number is NOT a GS1 GTIN/barcode number licenced for use in open global supply chains and is not supported by GS1.	Check the GTIN with the GTIN Allocator. This product cannot be listed
202	This number is NOT a GS1 GTIN/barcode number licenced for use in open global supply chains. It is used for EPC/RFID applications.	Check the GTIN with the GTIN Allocator. This product cannot be listed
203	This number is for demonstration purposes only and is not used for products in open global supply chains.	Check the GTIN with the GTIN Allocator. This product cannot be listed
204	This number is reserved for serial publications and is not used for other products.	Check if the product is a publication (such as a magazine or newspaper). If it is, then it may be listed. If not, then check the GTIN with the GTIN Allocator. This product cannot be listed
205	This number is reserved for books and is not used for other products.	Check if the product is a book. If it is, then it may be listed. If not, then check the GTIN with the GTIN Allocator. This product cannot be listed
206	This number is NOT a GS1 GTIN/barcode number licenced for use in open global supply chains.	Check the GTIN with the GTIN Allocator. This product cannot be listed
207	This number is not used for products. It is reserved for couponing.	Check the GTIN with the GTIN Allocator. This product cannot be listed
208	This number is not used for products. It is reserved for couponing.	Check the GTIN with the GTIN Allocator. This product cannot be listed

209	This number is not used for products. It is reserved for receipts.	Check the GTIN with the GTIN Allocator. This product cannot be listed
210	Reserved error code	
301	This number is NOT a GS1 GTIN/barcode number licenced for use in open global supply chains and is not supported by GS1.	Check the GTIN with the GTIN Allocator. This product cannot be listed
302	This number is NOT a GS1 GTIN/barcode number licenced for use in open global supply chains and is not supported by GS1.	Check the GTIN with the GTIN Allocator. This product cannot be listed
303	Reserved error code	
304	This number is registered to company: <company name>. Currently, no product information has been provided for this product.	This GTIN is valid but we are unable to confirm which product it has been assigned to. Check with the GTIN Allocator. This product may be listed upon confirmation from the GTIN Allocator
305	This number is registered to company: <company name>. AND all available product attributes.	This GTIN is valid but we have limited information on the product. Check with the GTIN Allocator. This product may be listed upon further confirmation from the GTIN Allocator.
306	Complete Data This number is registered to company: <company name>. AND all available product attributes.	The GTIN is valid and we have product information available. Please check the product information matches what is being listed. This product may be listed.

## Appendix 4: Language and country code lists

When languages and country of sale codes are provided they appear in the response as highlighted below:

```
"GTINTestResults": [  
  {  
    "GTIN": "05420071702255",  
    "CertaintyValue": 3,  
    "GCPCCode": "54200717",  
    "Status": "ACTIVE",  
    "IntegrityCheck": "INTEGRITY GOOD",  
    "IntegrityCode": 0,  
    "GCPOwner": "DE LAURIER BVBA",  
    "GS1Territory": "GS1 Belgium & Luxembourg",  
    "GPCCategoryCode": "10000813",  
    "GPCCategoryName": "Body Washing Other",  
    "BrandName": "Isabelle Laurier (nl-BE), Isabelle Laurier (fr-BE)",  
    "ProductDescription": "ISABELLE LAURIER Gommage de sel Pamplemousse&Fenouil 500g (fr-BE), ISABELLE LAURIER Saltscrub Grapefruit&Fennel 500g (en-GB), ISABELLE LAURIER Zoutscrub  
Pompelmoes&Venkel 500g (nl-BE), ISABELLE LAURIER Salz-Peeling Pampelmuse&Fenchel 500g (de-DE)",  
    "ProductImageUrl":  
    "https://dam.gs1belu.org/originals/5425013550000%2F652e198068864eaba006e8fbf8eb377c%2F05420071702255\_A1C1.jpg (en-GB)",  
    "NetContent": "1.0 H87",  
    "CountryOfSaleCode": "BE"
```

The full lists of these codes:

- ISO 639 Language codes can be found [here](#)
- ISO 3166 Country codes can be found [here](#)