Tracking® RESTful Developer Guide

March 18, 2020

Important Information

UPS Developer Kit APIs

Your development of an application using UPS Developer Kit APIs is governed by the UPS Technology Agreement you entered into with UPS. The following are key legal requirements from these agreements for the UPS Developer Kit APIs. For more information on all requirements for the UPS Developer Kit APIs, please refer to the UPS Technology Agreement.

Defined terms used but not defined in this document have the meaning set forth in the UPS Technology Agreement.

Key Legal Requirements for UPS Developer APIs

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This document can only be used in the countries of the Permitted Territory as defined in the UPS Technology Agreement, as applicable.

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The application must not be designed to allow distribution of information received through the UPS Developer Kit APIs to third parties, other than to persons having a bona fide interest in such information (e.g., the shipper, receiver, or the third party payer, or to your service providers authorized by UPS).

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Display of Information

The application must not display information concerning any other provider of shipping services or such other shipping services on any page, whether comprising one or more frames, displaying information your application receives from the UPS Developer Kit APIs. Your application must present all data within each field received through the UPS Developer Kit APIs without amendment, deletion, or modification of any type.

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Table of Contents

Chapter 1: Introduction

In this document, you will find guidance and instructions for integrating Tracking RESTful into your application, service, or system.

In this guide, you will find:

- Tracking RESTful API functionality and business rules

- RESTful API request and response elements

- Header and URL elements

- Sample request, response and error response

- Error response code descriptions

- Service code references

This guide applies to the following API:

- Tracking RESTful API

Intended Audience

This guide is intended for developers who will be integrating the Tracking RESTful API into their application, service, or system.

Required Knowledge & Skills

This guide assumes you have a basic understanding of the following:

- Concepts and instructions in the *Introduction to the UPS Developer Kit* guide

- Web services

- Software development

How to Use this Guide

- If this is your first time working with the UPS Developer Kit, begin with the *Introduction to the UPS Developer Kit* guide. This guide serves as the foundation for all API-specific developer guides.

- If you are experienced with the UPS Developer Kit but have not yet worked with the Tracking RESTful API, continue with Chapter 2: Understanding the Tracking RESTful API. There you will find an overview of the Tracking functionality and business rules.

- Chapter 3: Customer Integration Environment (CIE) contains information on UPS integration environments.

- Chapter 5 contains an overview of the elements that comprise the response.

- Reference tables and error codes are located in the Appendices.

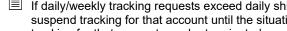# Chapter 2: Understanding the Tracking RESTful API

The Tracking RESTful API supports Package, Ground Freight and Air Freight shipments. Signature Tracking and BCDN are not supported in Tracking RESTful API at this time, however it will be available in a future release.

- Some Tracking data may not be returned in the response because the data rolled off. Database retention times:

    o Manifest information, and Manifest Voided scans: 120 days

    o Exception scans: 120 days

    o In Transit scans like Origin/Arrivals/Departures/Destination scans: 120 days

- UPS uses tracking numbers to identify and track packages in its system. Applications can use the tracking number to track, locate, and verify arrival of a package.

Tracking Usage Guidelines

The following guidelines are included so all UPS customers can use UPS Tracking without delays:

- Insure that tracking requests are valid. If error messages like tracking number not found, no information available, or invalid tracking number are received, research the cause of the error before continuing to track the same number.

- When the results of a tracking request indicate a "delivered" status, do not continue to track the package.

- Track packages during "off hours" whenever possible. Off hours are from 5:00 pm to 8:00 am East Coast time.

- Allow for at least two seconds between individual tracking requests.

- Avoid automatic access between 10:00 am to 3:00 pm EST. However, you may track critical packages during this time.

- Evenly distribute your information requests over the remaining 19-hour window.

- Make every attempt to limit requests for information to no more than 2000 per hour (evenly distributed throughout the hour).

- Do not track the same numbers continually throughout the day. Any less than 50% unique numbers in a given 24-hour period can result in termination. For example, if a service level indicates a guaranteed delivery time of 10:30 a.m. and the tracking information guarantee is for 30 minutes after delivery, you should track that shipment after 11:00 a.m.

📄 If daily/weekly tracking requests exceed daily shipping volume by a large margin, UPS reserves the right to suspend tracking for that account until the situation is rectified. If a resolution cannot be found and implemented, tracking for that account may be terminated.

Business Rules

General

- UPS expects elements as defined in the request structure without spelling or structural deviations. Elements that are not defined in the data request or do not conform to the structure will be ignored by UPS.

- Only users that plan to ship packages manifested, tendered, and delivered by UPS can use the API.

- Any customers/developers abusing or data mining the API will have their access revoked.

- To access API documentation the user must have or create a UPS profile.

- To access testing and production sites the user must have an Access Key. To get an Access Key you must have a UPS profile and an associated shipping account. For additional information, refer to the *UPS Developer Kit User Guide*.

Chapter 3: Customer Integration Environment (CIE)

The Customer Integration Environment allows customers to test their application prior to launch. This environment is intended for integration testing of customer applications with the UPS servers.

Once your application has been thoroughly tested, you should redirect the application to the UPS Production Environment.

📄 No stress testing should ever be performed by customers against any UPS systems.

To access testing and production sites the user must have an Access Key. You can request an Access Key after establishing a UPS profile and associating your shipping account.

System Availability

The Customer Integration Environment is available 24 hours a day, 7 days a week. Note, the system is occasionally down for server maintenance.

📄 All API URLs are case sensitive.

Integration Testing

📄 All API URLs are case sensitive.

For integration testing, direct your Tracking RESTful API to:

https://wwwcie.ups.com/track/v1/details/{inquiryNumber}

Production

📄 All API URLs are case sensitive.

Once testing is complete, direct your TradeAbility RESTful API to the production URL:

https://onlinetools.ups.com/track/v1/details/{inquiryNumber}

Chapter 4: Common Element Constraints

The following constraints applies to all APIs referenced in this developer guide.

📄 UPS expects elements as defined in the request and presented in the structure i.e., no spelling or structural deviations. Elements that are not defined or do not conform to the structure will be ignored by UPS.

Element constraints are defined as follows:

Name

The element or container name.

Constraints

Required

- Yes - indicates the element must be present in the request or response.

- Yes* - indicates the element must be present in the request if the parent container is present in the request.

- No - indicates the element is optional and may be used if it applies to the request.

- Cond – indicates the element is required under certain conditions.

Type

- Container - holds a group of related elements.

- String - consists of alphanumeric characters, spaces, and decimals.

- Array – collection of values that allows to provide a list of values. An array begins with [(left bracket) and ends with] (right bracket). Its values are separated by , (comma).

- Header – header parameter

- Path – URL path parameter

- Query – URL query parameter

Length

- The maximum number of characters that can be present in a String. Length is not applicable (N/A) to Containers.

Max Allowed

- The maximum number of elements or containers that can be present in the parent container.

Description

A description of the element or container. Also any validation rules associated with the element/container.

Chapter 5: Tracking REST Elements and Details

The Request and Response tables contain the full hierarchy of the API elements.

📄 UPS expects elements as defined in the tables and presented in the structure i.e., no spelling or structural deviations. Elements that are not defined or do not conform to the structure will be ignored by UPS.

Headers

Name	Constraint	Description
transId	Required: Yes Type: Header Length: 32	An identifier unique to the request
transactionSrc	Required: Yes Type: Header Length: 512	Customer provided data. Echoed back in the response if provided.
AccessLicenseNumber	Required: Cond Type: Header Length: 16	Authorization: Access Key obtained through on-boarding process. Contact your UPS representative for additional information.
Username	Required: Cond Type: Header Length: 16	The customers MyUPS user ID/username.
Password	Required: Cond Type: Header Length: 26	The customers MyUPS password. Required if the AuthenticationToken is not present.
AuthenticationToken	Required: Cond Type: Header	Used to authenticate the API. Can be used in place of Username and Password example: AuthenticationToken:<value>
Authorization	Required: Cond Type: Header	Used to authorize the access to API. Can be used in place of Username and Password

URL

https://onlinetools.ups.com/track/v1/details/{inquiryNumber}

URL Parameters

Name	Constraint	Description
inquiryNumber	Required: Yes Type: Path Max Allowed: 1 Length: 34	The tracking number for which tracking information is requested. The number must be between 7 and 34 characters in length.

Query Parameters

Name	Constraint	Description
locale	Required: No Type: Query Length: 5	The language and country code combination. If not provided will default to "en_US".

TrackResponse

Name	Constraint	Description	Validation
{"trackResponse": {} }			
TrackResponse	Required: Yes Type: Container Max Allowed: 1 Length: N/A	The root element/container for the TrackResponse	
{"trackResponse": {"shipment": [{}] } }			
Shipment	Required: Yes Type: Container Max Allowed: 1 Length: N/A	A container element which contains the Shipment details associated to the inquiry numbers.	
{"trackResponse": {"shipment": [{"package": [{}] }]} }			
Package	Required: Yes Type: Container Max Allowed: 1 Length: N/A	A container element which contains the Package details	
{"trackResponse": {"shipment": [{"package": [{"trackingNumber": " "}] }]} }			
TrackingNumber	Required: Yes Type: String Max Allowed: 1 Length: 34	The small package, mail innovations, freight or overnight tracking number	
{"trackResponse": {"shipment": [{"package": [{"deliveryDate": [{}] }] } }			
DeliveryDate	Required: No Type: Container Max Allowed: Many Length:	A container element which stores Delivery date details associated with the package	
{"trackResponse": {"shipment": [{"package": [{"deliveryDate": [{"type": ""}]}] }]} }			
Type	Required: Yes Type: String Max Allowed: 1 Length: 3	Delivery Date Type. Valid values: RDD - Rescheduled Delivery Date SDD - Scheduled Delivery Date DEL - Delivery Date	
{"trackResponse": {"shipment": [{"package": [{"deliveryDate": [{"date": ""}] }] }]} }			
Date	Required: Yes Type: String Max Allowed: 1 Length: 10	Date of the transaction. Format: MMDDYYYY	
{"trackResponse": {"shipment": [{"package": [{"deliveryTime": {} }] }] } }			
DeliveryTime	Required: No Type: Container Max Allowed: 1 Length:	Container which stores Delivery times associated with the package	
{"trackResponse": {"shipment": [{"package": [{"deliveryTime": {"startTime": ""} }]}] } }			
StartTime	Required: Yes Type: String Max Allowed: 1 Length: N/A	The start time, committed time or delivered time Format: HHMMSS – 24 hours Local time	

Name	Constraint	Description	Validation
{"trackResponse": {"shipment": [{"package": [{"deliveryTime": {"endTime": ""}}]}] } }			
EndTime	Required: Cond Type: String Max Allowed: 1 Length: 1...13	The end time of the window. Only returned with the Type is EDW, CDW or IDW. Format: HHMMSS – 24 hours Local time	
{"trackResponse": {"shipment": [{"package": [{"deliveryTime": {"type": ""}}]}] } }			
Type	Required: Yes Type: String Max Allowed: 1 Length: 3	Indicates the type of delivery Valid values: DEL Delivery Time CDW Confirm Delivery Window IDW Imminent Delivery Window EDW Estimated Delivery Window CMT Commit Time EOD End of Day	
{"trackResponse": {"shipment": [{"package":[{"activity": [{}] }] }] } }			
Activity	Required: No Type: Container Max Allowed: 1 Length: N/A	A container element containing the scan activity associated with the inquiryNumber	
{"trackResponse": {"shipment": [{"package": [{"activity": [{"location": {} }] } }] }] } }			
Location	Required: No Type: Container Max Allowed: Many Length:	Container which holds the location where activity occurred	
{"trackResponse": {"shipment": [{"package": [{"activity":[{"location": {"address": {} } }] } }] }] } }			
Address	Required: No Type: String Max Allowed: 1 Length:	Container which stores the Address details	
{"trackResponse": {"shipment": [{"package": [{"activity": [{"location": {"address": {"city": ""} } }] }] } }] }] } }			
City	Required: No Type: String Max Allowed: 1 Length: 50	City name	
{"trackResponse": {"shipment": [{"package": [{"activity": [{"location": {"address": {"stateProvince": ""}} }] }] } }] }] } }			
StateProvince	Required: No Type: String Max Allowed: 1 Length:	State or Province name	
{"trackResponse": {"shipment": [{"package": [{"activity": [{"location": {"address": {"postalCode": ""}} }] }] } }] }] } }			
PostalCode	Required: No Type: String Max Allowed: 1 Length: 15	Postal code of state or province (if applicable) Ex. 55555	

Name	Constraint	Description	Validation
{"trackResponse": {"shipment": [{"package": [{"activity": [{"location": {"address": {"countryCode": ""}} }] }] }]} }			
CountryCode	Required: No Type: String Max Allowed: 1 Length: 2	Two digit country code. Ex. US	
{"trackResponse": {"shipment": [{"package": [{"activity": [{"status": {} }] }] }] } }			
Status	Required: Yes Type: Container Max Allowed: 1 Length: N/A	Container which stores the Status associated to the activity	
{"trackResponse": {"shipment": [{"package": [{"activity": [{"status": {"type": ""} } }] }] } }			
Type	Required: Yes Type: String Max Allowed: 1 Length:	Valid values: D Delivered I In Transit M Billing Information Received MV Billing Information Voided P Pickup X Exception RS Returned to Shipper DO Delivered Origin CFS (Freight Only) DD Delivered Destination CFS (Freight Only) W Warehousing (Freight Only) NA Not Available O Out for Delivery	
{"trackResponse": {"shipment": [{"package": [{"activity": [{"status": {"description": ""} } }] }] } }			
Description	Required: Yes Type: String Max Allowed: 1 Length:	The status description	
{"trackResponse": {"shipment": [{"package": [{"activity": [{"status": {"code": ""} }] }] } }			
Code	Required: Yes Type: String Max Allowed: 1 Length: 10	Status code	
{"trackResponse": {"shipment": [{"package": [{"activity": [{"date": ""}] }] }]} }			
Date	Required: Yes Type: String Max Allowed: 1 Length: 10	The date of the activity Format: YYYYMMDD	
{"trackResponse": {"shipment": [{"package": [{"activity": [{"time": ""}] } }] } }			
Time	Required: Time Type: String Max Allowed: 1 Length: 1...16	The time of the activity Format: HHMMSS (24 hr) Local time	

API Sample Scenario

Scenario:

Client application is searching for a restricted trading partner by name.

Method	GET
Header Elements	transId: 12345 transactionSrc: TestTrack Username: user name AccessLicenseNumber: accesslicensenumber Content-Type: application/json Accept: application/json
Example URL	https://onlinetools.ups.com/track/v1/details/1Zxxxxxxxxxxxxxx?en_US
| Example Response | ```
{
   "trackResponse": {
      "shipment": [
         {
            "package": [
               {
                  "trackingNumber": "1Zxxxxxxxxxxxxxx ",
                  "activity": [
                     {
                        "location": {
                           "address": {
                              "city": "Sparks",
                              "stateProvince": "MD",
                              "postalCode": "",
                              "country": "US"
                           }
                        },
                        "status": {
                           "type": "X",
                           "description": "Delay",
                           "code": "CK"
                        },
                        "date": "20200115",
                        "time": "104600"
                     },
                     {
                        "location": {
                           "address": {
``` |

```
                            "city": "",
                            "stateProvince": "",
                            "postalCode": "",
                            "country": "US"
                        }
                    },
                    "status": {
                        "type": "M",
                        "description": "Order Processed: Ready for UPS ",
                        "code": "MP"
                    },
                    "date": "20200115",
                    "time": "075518"
                }
            ]
        }
    ]
}
]
}
}
```

Example Error Response

```
{
    "response": {
        "errors": [
            {
                "code": "TV1002",
                "message": "Invalid inquiry number"
            }
        ]
    }
}
```

Appendices

Error Codes

When the UPS system is unable to respond to a request, be it from a malformed request, an illegal or invalid value, or other issues, the API generates an error response.

HTTP Status Codes

Code	Message	Description
200	OK	**Success:** Everything is working
400	Bad Request	The request was invalid or cannot be served. The exact error should be explained in the error payload. E.g. The JSON is not valid"
401	Unauthorized	The request requires authentication
404	Not found	URL does not exist or resource not found
405	Method not allowed	Method not allowed
500	An internal server error occurred	An internal server error occurred; API developers should avoid this error. If an error occurs in the global catch blog, the stracktrace should be logged and not returned as response.
503	Internal Server Error	The service/resource is not available. There are external component DOWN issues that the client will not be able to resolve

Common Error Codes

The following error codes can apply to all RESTful and other APIs.

Code	Severity	Description
10001	400	The XML document is not well formed.
10002	400	The XML document is well formed but the document is not valid.
10003	400	The XML document is either empty or null.
10006	400	Although the document is well formed and valid, the element content contains values which do not conform to the rules and constraints contained in this specification.
10013	400	The message is too large to be processed by the Application.
20001	500	General process failure.
20002	400	The specified service name, {0}, and version number, {1}, combination is invalid.
20003	400	Please check the server environment for the proper J2EE ws apis.
20006	400	Invalid request action.
20007	400	Missing Required field, {0}.
20008	400	The field, {0}, contains invalid data, {1}.
20012	400	The Client Information exceeds its Maximum Limit of {0}.
250000	400	No XML declaration in the XML document.
250001	401	Invalid Access License for the tool. Please re-license.

Code	Severity	Description
250002	401	Invalid UserId/Password.
250003	401	Invalid Access License number.
250004	401	Incorrect UserId or Password.
250005	401	No Access and Authentication Credentials provided.
250006	401	The maximum number of user access attempts was exceeded.
250007	401	The UserId is currently locked out; please try again in 30 minutes.
250009	401	License Number not found in the UPS database.
250019	401	Invalid Field value.
250050	500	License system not available.

Tracking Error Codes

Error Code	Severity	Description
TV1001	400	Missing Inquiry Number
TV1002	400	Invalid Inquiry Number
TV1003	400	Unsupported inquiry number type
TW0001	200	Tracking Information Not Found
TX0002	503	Tracking Information Not Available at this time
TX0001	500	Generic web service internal failure error

State / Province Codes

United States

State	Code
Alaska	AK
Alabama	AL
Arkansas	AR
Arizona	AZ
California	CA
Colorado	CO
Connecticut	CT
District of Columbia	DC
Delaware	DE
Florida	FL
Georgia	GA
Hawaii	HI
Iowa	IA
Idaho	ID
Illinois	IL
Indiana	IN
Kansas	KS
Kentucky	KY
Louisiana	LA
Massachusetts	MA
Maryland	MD
Maine	ME
Michigan	MI
Minnesota	MN
Missouri	MO
Mississippi	MS
Montana	MT
North Carolina	NC
North Dakota	ND
Nebraska	NE
New Hampshire	NH

State	Code
New Jersey	NJ
New Mexico	NM
Nevada	NV
New York	NY
Ohio	OH
Oklahoma	OK
Oregon	OR
Pennsylvania	PA
Rhode Island	RI
South Carolina	SC
South Dakota	SD
Tennessee	TN
Texas	TX
Utah	UT
Virginia	VA
Vermont	VT
Washington	WA
Wisconsin	WI
West Virginia	WV
Wyoming	WY

Canada

Province	Code
Alberta	AB
British Columbia	BC
Manitoba	MB
New Brunswick	NB
Newfoundland and Labrador	NL
Nova Scotia	NS
Northwest Territories	NT
Nunavut	NU
Ontario	ON
Prince Edward Island	PE

Province	Code
Quebec	QC
Saskatchewan	SK
Yukon Territory	YT

Locale codes

The following table lists all supported locale codes (country/territory and language combination). Refer to the Country/Territory Codes Appendix section for Country/Territory details.

Locale is accepted in below format Example: - Locale - en_US means 'LanguageCode_CountryCode'

Locale Code
bg_BG
cs_CZ
da_DK
de_AT
de_CH
de_DE
el_CY
el_GR
en_AE
en_AG
en_AI
en_AL
en_AR
en_AT
en_AU
en_AW
en_AZ
en_BA
en_BB
en_BD
en_BE
en_BG
en_BH
en_BL
en_BM
en_BO
en_BQ
en_BR
en_BS

en_CA
en_CB
en_CH
en_CI
en_CL
en_CN
en_CO
en_CR
en_CW
en_CY
en_CZ
en_DE
en_DK
en_DM
en_DO
en_DZ
en_EC
en_EE
en_EG
en_ES
en_EU
en_FI
en_FR
en_GB
en_GD
en_GH
en_GI
en_GP
en_GR
en_GT
en_GY
en_HK
en_HN
en_HR

en_HT
en_HU
en_ID
en_IE
en_IL
en_IN
en_IT
en_JM
en_JO
en_JP
en_KE
en_KN
en_KR
en_KW
en_KY
en_KZ
en_LB
en_LC
en_LT
en_LU
en_LV
en_MA
en_MD
en_MO
en_MS
en_MT
en_MU
en_MX
en_MY
en_NG
en_NI
en_NL
en_NO
en_NZ

en_OM
en_PA
en_PE
en_PH
en_PK
en_PL
en_PR
en_PT
en_PY
en_QA
en_RE
en_RO
en_RS
en_RU
en_SA
en_SE
en_SG
en_SI
en_SK
en_SR
en_ST
en_SV
en_SX
en_TH
en_TN
en_TR
en_TT
en_TW
en_UA
en_US
en_UY
en_VC
en_VE
en_VG

en_VI
en_VN
en_ZA
en_ZW
es_AR
es_BO
es_CL
es_CO
es_CR
es_DO
es_EC
es_ES
es_GT
es_HN
es_MX
es_NI
es_PA
es_PE
es_PR
es_PY
es_SV
es_US
es_UY
es_VE
et_EE
fi_FI
fr_BE
fr_CA
fr_CH
fr_DZ
fr_FR
fr_LU
fr_MA
fr_TN

he_IL
hu_HU
it_IT
ja_JP
ko_KR
lt_LT
lv_LV
nl_BE
nl_NL
no_NO
pl_PL
pt_BR
pt_PT
ro_RO
ru_RU
sk_SK
sv_SE
tr_TR
vi_VN
zh_CN
zh_HK
zh_MO
zh_TW