

TNT

ExpressConnect

ExpressConnect Town Lookup Integration Guide

Version 1.1



Revision History

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1.Introduction

ExpressConnect Town Lookup is part of the ExpressConnect family, providing B2B interfaces into TNT's operational and financial systems.

Our ExpressConnect and ExpressLabel services ensure the selected route is feasible. To find the appropriate route we must use TNT spelt Town names and postcodes. For example, Köln in Germany is stored as Koeln in our systems and so Koln is not found. If we do not use Koeln (or the aliases Köln) we cannot determine the route and so cannot take the booking, print the label or rate the shipment.

We have added a town lookup interface to ExpressConnect Pricing. It is password protected using the ExpressConnect user security. In this guide we will refer to accessing ExpressConnect Pricing.

This manual provides a technical guide to the ExpressConnect Town Lookup interface. It is designed to help developers understand the interface sufficiently to program an application to request the TNT spelling for a town.

Return data from TNT will be formatted as XML, again in a predetermined structure. When this data is returned to a client, they may parse it for storage or presentation, as they require.

An ExpressConnect Login Id will be arranged by your TNT representative. A secure connection is thus set up, using both authentication and secure protocols, to submit requests and to receive processed gettownpost based on the published URL:

<https://express.tnt.com/expressconnect/pricing/gettownpost>

Sample scripts are provided to show how a connection can be achieved together with example requests and responses to illustrate the data required; see Connecting to ExpressConnect Pricing. Consideration is given below to the networking and security requirements to ensure that this is successful.

1.1 Legend

The following conventions have been used throughout this document.

Normal	The majority of text in this document is in this style. Section in this style are part of the narrative of the document
Code	Sections or words in this text indicate a section of XML, XML element, or section of code.
[0..1]	Digits within square brackets indicate the number of times an element may occur in an XML document. Examples include: [1] The element must appear once in the document [0..*]. The element may appear once, many times (unlimited) or not at all. [0..1] The element is optional. If it appears, it must appear only once. [1..5] The element may appear any number of times between 1 and 5 times
xsd:string	This indicates one of the schema types, in this case a string. More information on defined schema data types can be found at http://www.w3.org/TR/xmlschema-2/#built-in-datatypes
...	Means that the section has been omitted for the sake of clarity. This usually means that the omitted elements are described elsewhere or that the section where they appear is a repetition of a previous stanza. For example: <house> <room> <width unitOfMeasure="m">12</width> </room> <!-- the next room contains the same dimensions sections as the one above. --> <room>...</room> </house>

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2.Registration

Each customer is set up with a username and password, required for all communications with the system. The same username and password is used for ExpressConnect Shipping Pricing. Town lookup and Tracking.

Please contact your local TNT representative to complete a registration request.

3.Example XML request document

An example is provided below of a typical lookup request. The request specifies a single postcode, with no specific town.

```
<?xml version="1.0" encoding="UTF-8"?>
<townSearchRequest>
  <appId>PC</appId>
  <appVersion>1.0</appVersion>
  <townsearch>
    <country>FR</country>
    <town></town>
    <postcode>61000</postcode>
  </townsearch>
</townSearchRequest>
```

Figure 1

ExpressConnect encoding must be UTF-8, encoding="UTF-8".

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4.Input XML format

The structure for a Ship request is described below in detail. Alternatively, refer to Appendix A which contains a summary of the points below.

Note

It should be noted that XML defines a number of characters which are reserved. These include the greater-than (>), less-than (<), ampersand (&), and percent (%) characters. Where these appear in the data which is being submitted to ExpressConnect, the characters must be escaped or the content surrounded with a CDATA section.

A common requirement is to submit an address which includes a company name such as: "Andrews & Plummer". The ampersand must therefore be escaped as per the XML rules (&) or alternatively the whole or part of the text must be wrapped in a CDATA section as follows:

```
<Address><CDATA "Andrews & Plummer" </CDATA></Address>
```

The request has the following structure:

- Header – always required, this defines the XML document
- Lookup request– the search elements for which a lookup is required

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5.Request

5.1Header

The header section will begin every ExpressConnect pricing lookup XML document submitted to TNT.

This contains the XML declaration, which contains the character encoding used for the document and the standalone attribute, which should be set to “no”:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
```

5.2townSearchRequest

Each townSearchRequest element contains the following information:

```
<townSearchRequest>
  <appId>PC</appId>
  <appVersion>1.0</appVersion>
  ...
</townSearchRequest>
```

All elements are mandatory.

The APPID element should be defaulted to “PC”.

The <APPVERSION>element states the version of the interface that you are using. Your TNT Representative should provide the version number that you should use when you start your engagement.

Currently there is any interface version 1.0

5.3townsearch

Each townsearch element contains the following information:

```
<townsearch>
  <country>FR</country>
  <town>ALENCON</town>
  <postcode>61000</postcode>
</townsearch>
```


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The **country** is the country where the shipment will be collected and sent from. It is represented by the 2 digit ISO 3166-1 Alpha-2 country code.

The **town** is the town where you wish the shipment will be collected and sent from.

The **postcode** is the postcode where you wish the shipment will be collected and sent from.

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6.Response – SearchResults

The SearchResults can contain multiple searchresult elements.

6.1SearchResult

The search result contains details of match TNT towns based on the search criteria. In this instance, towns for postcode 61000:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<searchResults>
  <searchResult>
    <searchItem>1</searchItem>
    <searchPCEndRange>61029</searchPCEndRange>
    <searchPCStartRange>61000</searchPCStartRange>
    <searchTown>ALENCON</searchTown>
  </searchResult>
  <searchResult>
    <searchItem>2</searchItem>
    <searchPCEndRange>61000</searchPCEndRange>
    <searchPCStartRange>61000</searchPCStartRange>
    <searchTown>CERISE</searchTown>
  </searchResult>
  <searchResult>
    <searchItem>3</searchItem>
    <searchPCEndRange>61000</searchPCEndRange>
    <searchPCStartRange>61000</searchPCStartRange>
    <searchTown>ST GERMAIN DU CORBEIS</searchTown>
  </searchResult>
</searchResults>...
```

The searchResult element always contain the following elements:

- searchItem is a numeric element differentiating each search result.
- searchTown contains the TNT spelling for the town.

If the selected country supports Postcodes the Postcode range will be returned:

- searchPCEndRange
- searchPCStartRange

Please note this is the Postcode range and all Postcode in this range may not be valid. For example, Tamworth in the UK has a range of B77 1AA to B79 9ZZ, and B77 1ZZ might not be valid. Alencon in France has a range of 61000 to 61059 but 61030 is not a valid Postcode.

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7.Example Usage

The Service can be used to lookup towns and Postcodes, but can also be used to validate the combination.

7.1Just Postcode is supplied

This is the expected usage for the service. This will supply the town name of the supplied Postcode.

```
<?xml version="1.0" encoding="UTF-8"?>
<townSearchRequest>
  <appId>PC</appId>
  <appVersion>1.0</appVersion>
  <townsearch>
    <country>FR</country>
    <town></town>
    <postcode>61000</postcode>
  </townsearch>
</townSearchRequest>
```

This returns the TNT spelling

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<searchResults>
  <searchResult>
    <searchItem>1</searchItem>
    <searchPCEndRange>61029</searchPCEndRange>
    <searchPCStartRange>61000</searchPCStartRange>
    <searchTown>ALENCON</searchTown>
  </searchResult>
  <searchResult>
    <searchItem>2</searchItem>
    <searchPCEndRange>61000</searchPCEndRange>
    <searchPCStartRange>61000</searchPCStartRange>
    <searchTown>CERISE</searchTown>
  </searchResult>
  <searchResult>
    <searchItem>3</searchItem>
    <searchPCEndRange>61000</searchPCEndRange>
    <searchPCStartRange>61000</searchPCStartRange>
    <searchTown>ST GERMAIN DU CORBEIS</searchTown>
  </searchResult>
</searchResults>...
```

The Service can be used to lookup towns and Postcodes, but can also be used to validate the combination.

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7.2 Just Town is supplied – Postcode Countries

This will return the Postcode range for the town, in Postcode countries, but the main purpose is to complete the town

```
<?xml version="1.0" encoding="UTF-8"?>
<townSearchRequest>
  <appId>PC</appId>
  <appVersion>1.0</appVersion>
  <townsearch>
    <country>FR</country>
    <town></town>
    <postcode>61000</postcode>
  </townsearch>
</townSearchRequest>
```

This returns the TNT spelling

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<searchResults>
  <searchResult>
    <searchItem>1</searchItem>
    <searchPCEndRange>61029</searchPCEndRange>
    <searchPCStartRange>61000</searchPCStartRange>
    <searchTown>ALENCON</searchTown>
  </searchResult>
  <searchResult>
    <searchItem>2</searchItem>
    <searchPCEndRange>61000</searchPCEndRange>
    <searchPCStartRange>61000</searchPCStartRange>
    <searchTown>CERISE</searchTown>
  </searchResult>
  <searchResult>
    <searchItem>3</searchItem>
    <searchPCEndRange>61000</searchPCEndRange>
    <searchPCStartRange>61000</searchPCStartRange>
    <searchTown>ST GERMAIN DU CORBEIS</searchTown>
  </searchResult>
</searchResults>...
```

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7.3 Town and Postcode is supplied

If the Town and Postcode is supplied then this is a validation service.

```
<?xml version="1.0" encoding="UTF-8"?>
<townSearchRequest>
  <appId>PC</appId>
  <appVersion>1.0</appVersion>
  <townsearch>
    <country>FR</country>
    <town>Alencon</town>
    <postcode>61000</postcode>
  </townsearch>
</townSearchRequest>
```

If this is valid

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<searchResults>
  <searchResult>
    <searchItem>1</searchItem>
    <searchPCEndRange>61029</searchPCEndRange>
    <searchPCStartRange>61000</searchPCStartRange>
    <searchTown>ALENCON</searchTown>
  </searchResult>
</searchResults>
```

If this is invalid

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<document>
  <errors>
    <runtimeError><errorReason>Unable to Find Results From Legacy Adapter</errorReason>
    <errorSrcText>Invalid town and postcode combination</errorSrcText>
  </runtimeError>
</errors>
</document>
```

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It will also convert the Town to the TNT name if the aliases is known.

```
<?xml version="1.0" encoding="UTF-8"?>
<townSearchRequest>
  <appId>PC</appId>
  <appVersion>1.0</appVersion>
  <townsearch>
    <country>DE</country>
    <town>Köln</town>
    <postcode>51467</postcode>
  </townsearch>
</townSearchRequest>
```

If this is valid

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<searchResults>
  <searchResult>
    <searchItem>1</searchItem>
    <searchPCEndRange>51467</searchPCEndRange>
    <searchPCStartRange>51467</searchPCStartRange>
    <searchTown>KOELN</searchTown>
  </searchResult>
</searchResults>
```

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7.4 Just Town is supplied – None Postcode Countries

If the Town is supplied for a None Postcode country then this is a validation service.

```
<?xml version="1.0" encoding="UTF-8"?>
<townSearchRequest>
  <appId>PC</appId>
  <appVersion>1.0</appVersion>
  <townsearch>
    <country>HK</country>
    <town> KOWLOON, KOWLOON BAY</town>
  </townsearch>
</townSearchRequest>
```

If this is valid

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<searchResults>
  <searchResult>
    <searchItem>1</searchItem>
    <searchTown> KOWLOON, KOWLOON BAY</searchTown>
  </searchResult>
```

If this is invalid

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<document>
  <errors>
    <runtimeError><errorReason>Unable to Find Results From Legacy Adapter</errorReason>
    <errorSrcText>Invalid town and postcode combination</errorSrcText>
  </runtimeError>
</errors>
</document>
```

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7.5 Partial Town is supplied

Please note, if you supply a partial Town, the service will supply Towns matching the Partial name

```
<?xml version="1.0" encoding="UTF-8"?>
<townSearchRequest>
  <appId>PC</appId>
  <appVersion>1.0</appVersion>
  <townsearch>
    <country>HK</country>
    <town> KOWL</town>
  </townsearch>
</townSearchRequest>
```

In this instance the following were found

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<searchResults>
  <searchResult>
    <searchItem>1</searchItem>
    <searchTown>KOWLOON, CHA KWO LING</searchTown>
  </searchResult>
  <searchResult>
    <searchItem>2</searchItem>
    <searchTown>KOWLOON, CHEUNG SHA WAN</searchTown>
  </searchResult>
  <searchResult>
    <searchItem>3</searchItem>
    <searchTown>KOWLOON, CHOI HUNG</searchTown>
  </searchResult>
  <searchResult>
    <searchItem>4</searchItem>
    <searchTown>KOWLOON, CHOI WAN</searchTown>
  </searchResult>
  <searchResult>
    <searchItem>5</searchItem>
    <searchTown>KOWLOON, DIAMOND HILL</searchTown>
  </searchResult>
  <searchResult>
    <searchItem>6</searchItem>
    <searchTown>KOWLOON, HO MAN TIN</searchTown>
  </searchResult>
```

...

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8.Errors

There are a number of different errors that may occur when using ExpressConnect Pricing – Town lookup. Many of these are likely to be encountered in the initial development phase and are concerned with the format of the XML message and the presence of data items.

The remaining messages are concerned with validation of the data items and the availability of the service. The error messages are shown below:

It would be sensible to ensure that your code is capable of handling all of the potential error messages returned by ExpressConnect Pricing – Town lookup.

There are two error types which can be returned within the errors element

- runtimeError
- parseError

8.1The runtimeError section

The runtimeError section is for errors which are not resolvable by the customer e.g. database unavailable. The customer would be advised to contact their administrator for assistance.

The following excerpt shows an example of a runtime error:

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<document>
  <errors>
    <runtimeError>
      <errorReason>ExpressConnect Pricing request has failed. If you continue to receive this error, please contact your local service centre for further assistance. </errorReason>
    </runtimeError>
  </errors>
```

We also have application runtime errors which the customer can resolve such as invalid country, login credentials.

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<document>
  <errors>
    <runtimeError><errorReason>Unable to Find Results From Legacy Adapter</errorReason>
    <errorSrcText>Invalid town and postcode combination</errorSrcText>
  </runtimeError>
</errors>
</document>
```

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The key information in the `runtimeError` error is as follows:

- **errorReason** – This element contains a description indicating that the pricing request has failed and what action the customer should take. Normally the only course of action would be to resubmit the request or contact the local service centre for further assistance.
- **errorSrcText** – This element might contain some additional information regarding the source of the error.

8.2 The `parseError` section

The **parseError** section is for errors with the validity of the xml passed in e.g. missing elements, incomplete tags. These errors should only occur during your initial integration work with the pricing web service.

The following excerpt shows an example of a parse error caused by not including the mandatory `sender` element in the request.

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<document>
  <errors>
    <parseError>
      <errorReason>cvc-complex-type.2.4.a: Invalid content was found starting with element 'country'. One of
'{'sender}' is expected.</errorReason>
      <errorLine>11</errorLine>
      <errorLinepos>16</errorLinepos>
      <errorSrcText></errorSrcText>
    </parseError>
  </errors>
</document>
```

The key information in the `parseError` error is as follows:

- **errorLine** – This element indicates the line number where the error occurred in the request XML.
- **errorLinepos** – This element indicates the position on the line where the error occurred in the request XML.
- **errorSrcText** – This element is occasionally used to provide additional information related to the error.

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8.3 Table of application generated error codes, messages and resolutions

The Default Message column contains the English language message that is returned with each code. This value is intended to be used by systems integrators. For content management you should use the error code.

An element is considered empty if it contains no value or only whitespace. Therefore all of the following elements are empty:

```
<emptyElement/>

<emptyElement></emptyElement>

<emptyElement></emptyElement>
```

The following additional errors maybe returned from ExpressConnect Pricing.

Error Code	Error Description	Resolution
601	EXPRESSCONNECT_TOWN_POST_VERSION_NOT_RECOGNISED	The interface version must be set to 1.0.
602	UNABLE_TO_FIND_TOWN_SEARCH_ATTRIBUTE	The town has not been supplied
603	UNABLE_TO_FIND_POSTCODE_TOWN_COUNTRY	The postcode and town combinations could not be found
604	ERROR_IN_LEGACY_ADAPTOR_ENDED_NOT_OK	This is an internal error and should be reported to you CIT Representative
605	UNABLE_TO_FIND_RESULTS_FROM_LEGACY_ADAPTOR	This is an internal error and should be reported to you CIT Representative

Developer Notes

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9. Connecting to ExpressConnect Pricing

ExpressConnect Pricing is a HTTP web service, which defines an XML interface for data transfer.

In the section below we have an example using Java.

Even for a simple XML connection a number of jar files are recommended,

- a. commons-httpclient-3.1.jar (<http://hc.apache.org/httpclient-3.x/>)
- b. commons-logging-1.1.1.jar (<http://commons.apache.org/>)
- c. commons-codec-1.3.jar (<http://commons.apache.org/>)

See below an example request set up using Apache HttpClient 4.2.1. Please note the usage of BASIC authorization header for authentication.

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```
public class XMLTestApp {

    public static void main(String args[]) throws ClientProtocolException,
        IOException {

        // Create the xml request
        StringBuilder xmlRequest = new StringBuilder ();
        xmlRequest.append("<?xml version="1.0" encoding="UTF-8"?>");
        xmlRequest.append("<townSearchRequest>");
        // Add lookup request here
        xmlRequest.append("</townSearchRequest>");

        // Declare ExpressConnect pricing Town Lookup url and initialise http POST request
        String url = "https://express.tnt.com/expressconnect/pricing/gettownpost";
        HttpPost postRequest = new HttpPost (url);

        // Create the request entity
        HttpEntity requestEntity = new StringEntity (xmlRequest.toString(),
            ContentType.create("text/xml", "UTF-8"));
        postRequest.setEntity(requestEntity);

        // Create the authentication header
        String userPassword = "USER:USER";
        byte [] basicAuthEncoding = base64.encodeBase64(userPassword.getBytes());
        postRequest.addHeader ("Authorization", "Basic"
            + new String(basicAuthEncoding));

        // Initialise HttpClient and execute POST request
        HttpClient httpClient = new DefaultHttpClient ();
        HttpResponse result = httpClient.execute(postRequest);

        // Check HTTP Status code of the response
        System.out.println("Status Code: "
            + result.getStatusLine().getStatusCode());

        // Read content of result stream
        HttpEntity entity = result.getEntity();
        if (Entity != null) {
            System.out.println(IOUtils.toString(entity.getContent()));
        }
    }
}
```

Developer Notes

10. Appendix A: XML elements definition (input)

These tables contain all of the possible Input XML nodes and some information about their use. All elements are mandatory and must contain just one instance unless stated in the table below. If the data is optional then the element does not need to be provided.

XML elements which do not contain a value but are merely a container for other elements are noted as **Container element**, the elements contained therein are described in the rows immediately below. Please remember that field values should be escaped using the ![CDATA[]] notation. At a minimum, all address fields should be escaped. Failure to escape these areas could result in unexpected problems if the value in an element contains an Ampersand (&).

XML Element /attribute	Data required	Description	Constraints	Max Length	Parent Element
townSearchRequest	Y	Top level element			None
appid	Y	Application Id	The APPID element should be defaulted to "PC",		townSearchRequest
appVersion	Y	Application Version	Please use 1.0 unless specified to use an alternative interface version.		townSearchRequest
townsearch	Y	Holds lookup request			townSearchRequest
country	Y	Country	Must be TNT country code	3	townsearch
town	Y	Town name	The town for the postcode range that is to be looked up	30	townsearch
postcode	N	Postcode	The Postcode that will be used to lookup the possible TNT town names	9	townsearch

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