

**UPS OnLine® Tools  
Rates and  
Service Selection  
Developers Guide**

16 July 2007



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## Important Information

### UPS OnLine Tools Rate and Service Selection Tool

*Your development of an application using the UPS OnLine Tools Rate and Service Selection Tool is governed by the UPS Technology Agreement or UPS Customer Technology Agreement you entered into with UPS. The following are key legal requirements from these agreements for the UPS OnLine Tools Rate and Service Selection Tool. For more information on all requirements for the UPS OnLine Tools Rate and Service Selection Tool, please refer to the UPS Technology Agreement or the Customer Technology Agreement.*

### Key Legal Restrictions for UPS OnLine Tools Rate and Service Selection Tool

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*Use.* The application must not be designed to allow distribution of information received through the UPS OnLine Tools Rate and Service Selection Tool to third parties, other than to persons having a bona fide interest in such information (e.g., the shipper, consignee or the third party payor).

*Rate Information.* If your application displays or advertises rates which are different from the UPS rates returned by the UPS OnLine Tools Rate and Service Selection Tool, then the following language, or other such language provided by UPS from time to time, must be conspicuously displayed in reasonable proximity to such rates: "These fees do not necessarily solely represent UPS rates and may include handling charges levied by [You]."

*Consent to Use of UPS Mark.*

- All screens or forms generated by your application including information received through the UPS OnLine Tools Rate and Service Selection Tool must include (1) the UPS Mark positioned in reasonable proximity to the Information and of an appropriate size to readily identify the source of the Information as UPS and (2) the following language at the bottom of every screen that displays the UPS Mark: "UPS, the UPS brandmark, and the Color Brown are trademarks of United Parcel Service of America, Inc. All Rights Reserved". Except as set forth in the preceding sentence, You have no right to use the UPS Mark without the prior written approval of UPS.
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confusion as to source or sponsorship of the application, or ownership of the UPS Mark.

- The UPS Mark shall be used only as provided by UPS electronically or in hard copy form. The UPS Mark may not be altered in any manner, including proportions, colors, elements, etc., or animated, morphed or otherwise distorted in perspective or dimensional appearance.
- The UPS Mark may not be combined with any other symbols, including words, logos, icons, graphics, photos, slogans, numbers or other design elements. A minimum amount of empty space must surround the UPS Mark separating it from any other object, such as type, photography, borders, edges, etc. The required area of empty space around the UPS Mark must be  $1/3x$ , where  $x$  equals the height of the UPS Mark.

*Copyright and Proprietary Notices.* You must include in your application and any POD Letters you prepare a prominent reproduction of UPS's copyright and proprietary notices in a form and format specified by UPS (See Copyright Section of this document).

*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 OnLine Tools Rate and Service Selection Tool. Your application must present all data within each field received through the UPS OnLine Tools Rate and Service Selection Tool without amendment, deletion or modification of any type.

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## Welcome to UPS OnLine® Tools

Welcome to the UPS OnLine Tools Developers Guide. This guide provides the information you need to begin using UPS OnLine Tools.

The UPS OnLine Tools offer a fast and convenient way to access UPS service information using the Internet. With these tools, UPS lets you easily incorporate UPS technology in your own applications or your own web site. Your users—running your applications or visiting your web site—can have up-to-the-minute access to UPS services.

### How to Use this Guide

If you are an experienced developer, you can begin developing applications quickly after reviewing “Required Steps for Integrating with UPS OnLine Tools” for a brief overview of the tools.

If you would like a more step-by-step guide to developing and deploying UPS OnLine Tools, “Planning Your Applications” provides advice and describes options for developing and deploying applications and web sites that use UPS OnLine Tools.

The “UPS OnLine Tools Technologies” section explains key technologies on which the UPS OnLine Tools rely. That section also includes hints for using those technologies in various software development environments.

If you would like to learn more about what UPS OnLine Tools can do for your applications, “Understanding Rates and Service Selection” explains the services that those tools offer.

For a complete technical reference to the OnLine Tools, “The Rates and Service Selection Reference” includes a complete programming reference.

Additional material, including reference tables and lists, may be found in the appendices.

### What's New for July 2007

- The currency code abbreviation for the Chinese Yuan Renminbi is now RMB. (Page 54.)
- The currency for Slovenia is now the Euro (EUR). (Page 58.)
- Additional Package Types available. (Page 63.)

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## Required Steps for Integrating with UPS OnLine Tools

1. Review the UPS Technology Agreement available at [www.ups.com](http://www.ups.com). This agreement requires that you follow certain procedures and practices in using UPS OnLine Tools.
2. Develop applications that make use of standard HTTP communications protocols, SSL security, and XML-based document representations.
3. Test your application and/or web site using the designated UPS staging environment.
4. If you are a UPS Ready developer, review your application with UPS.
5. Deploy your application for your customers.

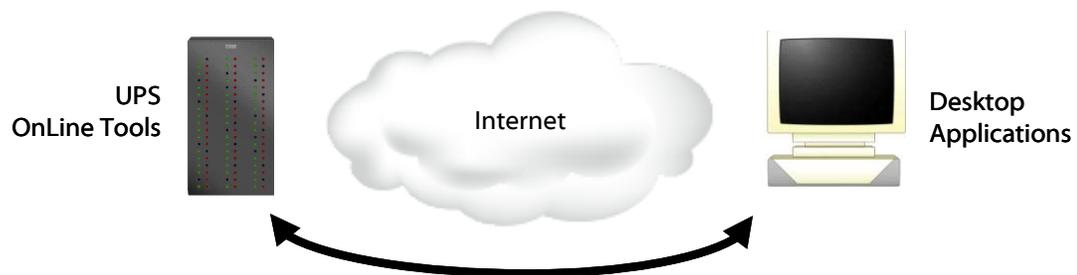
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## Planning Your Applications

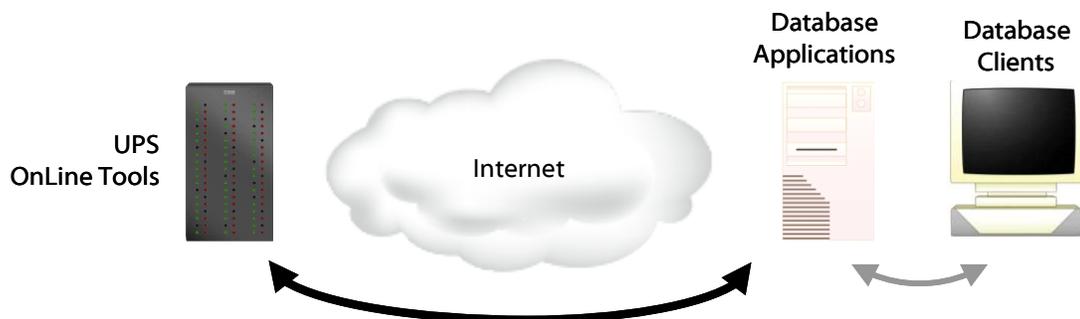
Planning is a key part of any successful development activity, and UPS OnLine Tools applications are no exception. This section helps that planning by describing the important activities of any UPS OnLine Tools application project. It provides an overview of the steps required to develop applications, and it describes key factors and choices necessary to deploy those applications.

### Online Tools Applications

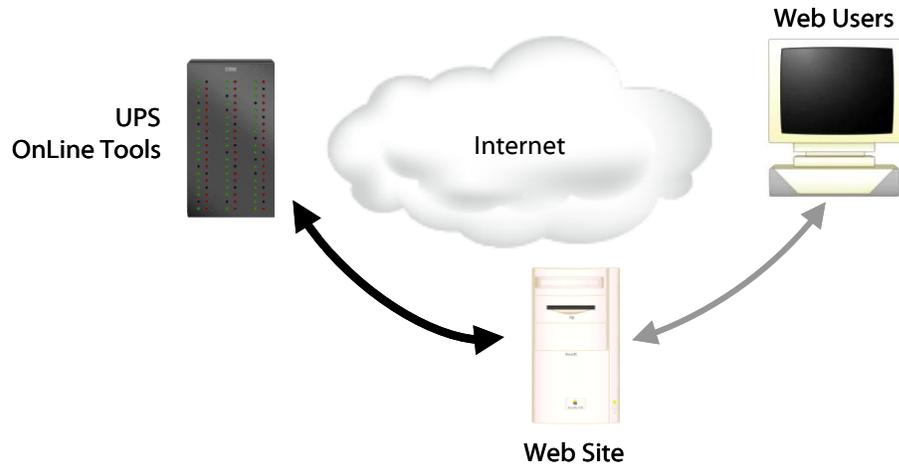
Many different types of applications can take advantage of UPS OnLine Tools. Those application types include dedicated desktop applications, databases, web applications, and documents. The following figures illustrate some of the possibilities for applications using UPS OnLine Tools. The only essential requirement for all of these applications is that they must have access to the Internet.



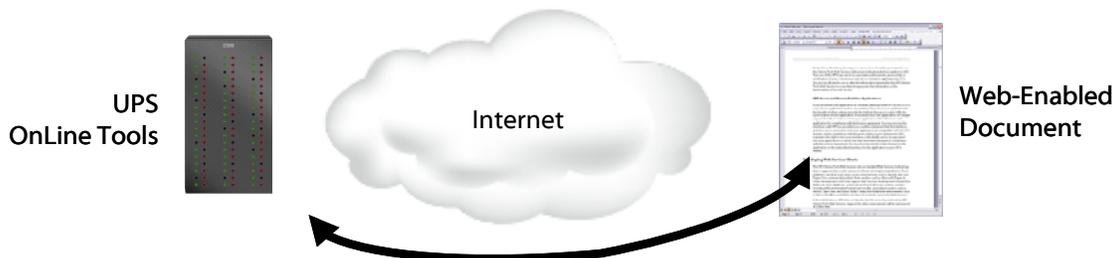
**Figure 1: Dedicated applications that users run on their desktops can access UPS OnLine Tools.**



**Figure 2: Database applications can access UPS OnLine Tools and return information to their clients.**



**Figure 3: Web sites can access UPS OnLine Tools and return information to users' web browsers.**



**Figure 4: Non-traditional applications such as Microsoft Office or Adobe Acrobat documents can use UPS OnLine Tools to automatically update their content.**

The UPS OnLine Tools support all of these types of applications and many others. Virtually any software that needs instant, up-to-date access to UPS services can take advantage of UPS OnLine Tools.

## Licensing the UPS OnLine Tools

As part of the UPS Technology Agreement, users of the tools have certain obligations that are spelled out within the service agreement and its exhibits. Regardless of the manner in which the UPS OnLine Tools are integrated into your specific e-commerce web site or enterprise application, you must adhere to appropriate usage requirements.

### ***Branding Requirements***

UPS should receive attribution and branding in all applications (including websites and software applications) that use the OnLine Tools. No End User,

Third Party Developer or Access User should be permitted to use the OnLine Tools without providing branded recognition to UPS. Your use of the UPS logo can in no way imply endorsement, sponsorship or certification of your e-commerce web site or enterprise application by UPS. You are not allowed to use or alter the information returned by the UPS OnLine Tools in a way that misrepresents the information or the functionality of the service.

### ***UPS Review of Applications***

If you distribute your application as software, please provide UPS access to or a copy of your application (and/or any updates). If you host your application for the benefit of others, please provide the Uniform Resource Locator (URL) for each location of your application. If you build your own application, UPS might request the URL in order to review your application. UPS may review each application for compliance with the UPS Technology Agreement.

## **Developing Client Applications for OnLine Tools**

When you develop software that uses the UPS OnLine Tools, you are building a client application. Because the UPS OnLine Tools rely on standard Internet-based technology, you can develop those applications using a wide variety of software development platforms, including Microsoft's Visual Studio, the Java Standard Edition and Enterprise Edition distributions, and many open source projects. This section introduces important technologies available in each of these development environments. Later sections of this document include more details on using each platform. Look for the icons in the left margin, which identify information relevant to a particular development environment.

### ***Microsoft Visual Studio***

Visual  
Studio

Developers using the Microsoft Visual Studio environment can rely the Microsoft XML Core Services (MSXML) for interacting with UPS OnLine Tools. Those services include functions to help applications create requests for and interpret responses, and they include functions to manage the communications between applications and UPS.

### ***Java Standard Edition and Enterprise Edition***

Java

Java developers can find all the classes they need for UPS OnLine Tools in the Java Standard Edition and Enterprise Edition distributions. The URL class in the java.net package provides the functions required for communication with UPS servers, and the Java API for XML Processing (JAXP) services let programs create requests and interpret responses from UPS.

## ***Open Source***

### **Open Source**

There are a number of open source efforts that include technology useful for creating OnLine Tools client applications; open source developers may find two particular projects to be especially helpful. The [libcurl](#) project is a library of functions that can manage the communications with UPS servers. For creating requests and interpreting responses, the [xerces](#) project provides essential functions in a variety of software languages.

## **Getting Technical Support**

UPS provides technical support for developers who are using the UPS OnLine Tools Web Services. To get in touch with a UPS technical support engineer, fill out the technical support request form on the UPS web site.

### ***Within the United States***

For developers in the United States, the request form may be found by selecting "Contact UPS" from the [www.myups.com](http://www.myups.com) web site, or from [www.ups.com](http://www.ups.com) from the steps below.

1. Log into [www.ups.com](http://www.ups.com) with your User ID and Password.
2. Select United States – English as the language.
3. Click the "Business Solutions" tab.
4. Click "Get Technical Support," and then select "UPS OnLine Tools."
5. Click the link for technical support.
6. Complete the e-mail form. Please explain details about errors that are being returned, and under what circumstances.

### ***Outside of the United States***

Developers outside the United States can find the technical support request in the OnLine Tools page within the Business Solutions section of their country's UPS web site.

1. Log into [www.ups.com](http://www.ups.com) with your User ID and Password.
2. Select your country's home page and language.
3. Click "UPS OnLine Tools", on the left navigational pane.
4. Click the "Business Solutions" tab.
5. Click "Support," on the left navigational pane.
6. Select "Technical Support Question".

7. Complete the e-mail form. Please explain details about errors that are being returned, and under what circumstances.

For more information or assistance with UPS technical support, please contact your UPS OnLine Tools representative.

## Testing and Deploying Applications

UPS maintains a special web site to support testing and staging of applications that rely on UPS OnLine Tools. This site lets developers test and debug their applications by simulating transactions with UPS. The staging site responds to requests just like the UPS production site; however, it does not initiate actual UPS business services.

For example, if you send a shipping request to the UPS production site, a UPS driver may show up at your location expecting to pick up a package (and expecting payment for the service.) Sending the shipping request to the staging site will avoid this problem.

The web site for testing and staging is the UPS Customer Integration Environment (CIE). You can access this test site by using the domain name of [wwwcie.ups.com](http://wwwcie.ups.com).

## Keeping Up-to-Date

As UPS adds new services and features, UPS OnLine Tools will evolve, offering more features and service benefits. Once you register to use UPS OnLine Tools, UPS will notify you by e-mail of updates and changes to the OnLine Tools. It is essential that an accurate e-mail address for your company be maintained. In addition, UPS recommends that you complete the secondary contact information to ensure that your organization receives the latest updates.

You should update your profile when changes occur or responsibilities for the OnLine Tools shift within your company. You can also return to the UPS Business Solutions area of [ups.com](http://ups.com) for the latest updated information about UPS OnLine Tools.

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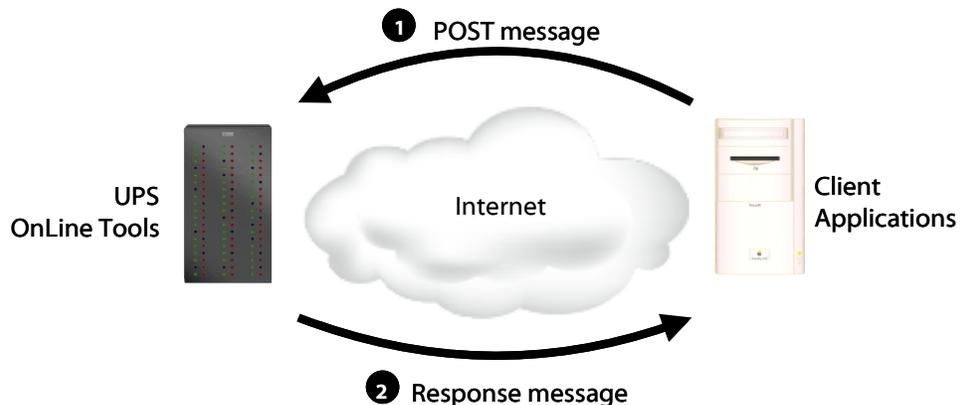
## UPS OnLine Tools Technologies

The foundation technologies for UPS OnLine Tools are the same technologies that underly today's Internet. They include the Hypertext Transfer Protocol (HTTP) with Secure Sockets Layer (SSL) security and the Extensible Markup Language (XML). Because these technologies are critical to the Internet, most software development tools provide many powerful features that make it easy for application programs to use them. This section provides a quick introduction to the technologies and to the tools that can support them.

### Hypertext Transfer Protocol and Secure Sockets Layer

Today's Internet supports a wide variety of applications including email, instant messaging, web browsing, and voice communications. All of these applications have a well-defined set of rules that determines how they communicate. Those rules are known as *protocols*. As an Internet application themselves, the UPS OnLine tools also rely on protocols to set the rules for their communications. The primary protocol for UPS OnLine Tools is the hypertext transfer protocol, or HTTP.

HTTP is a relatively simple protocol. An application that wants to use an OnLine Tool acts as an HTTP client. It sends its request to UPS as part of an HTTP POST message. UPS servers reply to each request using an HTTP response message.

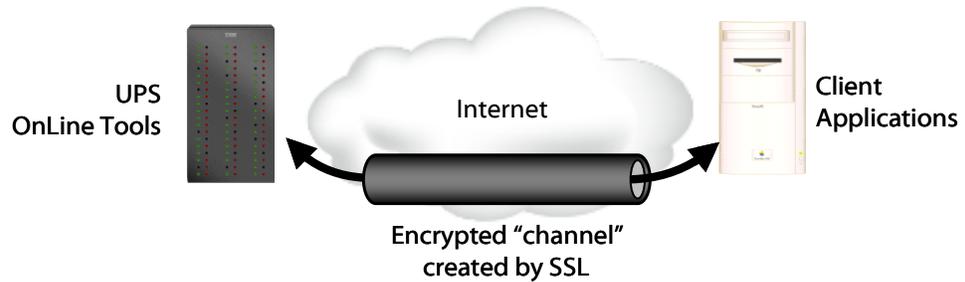


**Figure 5. UPS OnLine Tools accept requests from client applications in HTTP POST messages and reply to the requests with HTTP responses.**

As part of the POST message, client applications indicate the type of content the message contains using an HTTP Content-Type header. For UPS OnLine Tools, that content type should be `application/x-www-form-urlencoded`.

In many cases the UPS OnLine tools exchange information that should be kept private. To protect confidential information, the UPS OnLine Tools rely on the Secure Sockets Layer (SSL) protocol in addition to HTTP. When two systems communicate using SSL, the protocol creates a secure channel between them, and it encrypts all information that they exchange using this channel. The SSL

protocol that UPS OnLine Tools use is the same protocol used to secure millions of on-line purchases on the web.

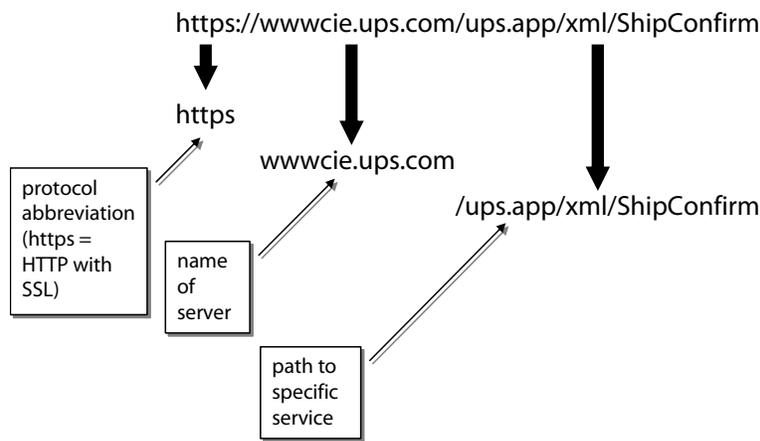


**Figure 6: SSL creates a secure channel across a network and protects confidential communications using that channel.**

## Working with HTTP and SSL in Application Programs

UPS OnLine Tools are not the only Internet services that rely on the HTTP and SSL protocols. Both protocols, in fact, were originally developed for web browsing, and they provide the foundation for the majority of Internet applications. Because HTTP and SSL are so common, software development tools make using these protocols very simple.

Because HTTP and SSL are commonly used for web browsing, software development tools often rely on the same notation and abbreviations as standard web browsers. In particular, most tools identify a specific service (such as a UPS OnLine Tool) using a Uniform Resource Locator (URL). URLs begin with an abbreviation of the communication protocol. For UPS OnLine Tools that abbreviation will always be "https" to indicate HTTP and SSL. The protocol abbreviation is followed by a colon, two slashes, and the name of a server. Additional information about the specific service can follow the server name; it is written like the path to a file in a directory, with slashes separating individual folders. Figure 7 shows how a URL combines these individual components.



**Figure 7. URLs identify communication protocols, servers, and specific services.**

The subsections that follow provide brief introductions to using HTTP and SSL with various software development tools, including Microsoft Visual Studio, Java Standard and Enterprise Edition, and popular open source environments.

### **Microsoft Visual Studio**

#### **Visual Studio**

The Microsoft Visual Studio environment includes many tools, classes, and libraries that simplify the use of HTTP and SSL protocols. A very convenient set of tools are included in the [Microsoft XML Core Services \(MSXML\)](#). The following code fragment shows how a Visual Basic program can send a request and retrieve the response. To keep the example as simple as possible, no exception handling is included in the figure. Production software should, of course, appropriately handle all exceptions.

```
' create the object that manages the communication
Dim oXMLHttp As XMLHTTP
Set oXMLHttp = New XMLHTTP

' prepare the HTTP POST request
oXMLHttp.open "POST", "https://www.server.com/path", False
oXMLHttp.setRequestHeader "Content-Type", _
    "application/x-www-form-urlencoded"

' send the request
oXMLHttp.send requestString

' server's response will be available in oXMLHttp.responseXML
```

**Figure 8. Visual Basic programs can use features of the MSXML tools to send and receive messages using HTTP and SSL.**

### **Java Standard Edition and Enterprise Edition**

#### **Java**

In a Java SE or EE environment, the URL class in the java.net package provides a convenient way to manage HTTP and SSL communications. Figure 9 contains a small code fragment that demonstrates the use of this class. As above, the fragment doesn't include exception handling that should be inherent in any production software.

```
import java.io.*;
import java.net.*;

URL url = new URL("https://www.server.com/path");
URLConnection conn = (URLConnection) url.openConnection();
conn.setRequestMethod("POST");
conn.setRequestProperty("Content-Type",
    "application/x-www-form-urlencoded");
conn.setDoOutput(true);
PrintWriter out = new PrintWriter(conn.getOutputStream());
out.println(requestString);
out.close();
BufferedReader in = new BufferedReader(
    new InputStreamReader(conn.getInputStream()));
/* server response is available by reading the in object */
```

**Figure 9. The URL class from the java.net package is a convenient way for Java programs to use HTTP and SSL.**

## Open Source

Open  
Source

The [libcurl](#) project is an open source project that includes support for using HTTP and SSL protocols. The fragment in Figure 10 shows how to set up libcurl to send a request using HTTP and SSL. It relies on a callback function to accept the server's response.

```
CURL *curl;
CURLcode res;

/* prepare to send the request */
curl = curl_easy_init();
curl_easy_setopt(curl, CURLOPT_URL, "https://www.server.com/path");
curl_easy_setopt(curl, CURLOPT_POSTFIELDS, requestString);
curl_easy_setopt(curl, CURLOPT_WRITEFUNCTION, fnCallback);

res = curl_easy_perform(curl);
```

**Figure 10. The open source libcurl library simplifies the use of HTTP and SSL.**

## Extensible Markup Language (XML)

The Extensible Markup Language (XML) is an international standard developed by the World Wide Web Consortium, the governing body for web standards and guidelines. XML provides a way to identify the structure of content within a document or, in the case of UPS OnLine tools, a message. Figure 11 shows how a simple XML message could describe a book.

```
<?xml version="1.0" encoding="UTF-8" ?>
<book>
  <title>
    HTTP Essentials: Protocols for Secure, Scalable Web Sites
  </title>
  <author>
    <firstname>
      Stephen
    </firstname>
    <lastname>
      Thomas
    </lastname>
  </author>
  <publisher>
    John Wiley and Sons
  </publisher>
  <year>
    2001
  </year>
  <isbn>
    0-471-398233
  </isbn>
</book>
```

**Figure 11: XML identifies the structure of documents, as in this document describing a book.**

As the figure illustrates, XML is a text-based format. XML messages contain regular text, though that text follows specific rules that XML defines. XML

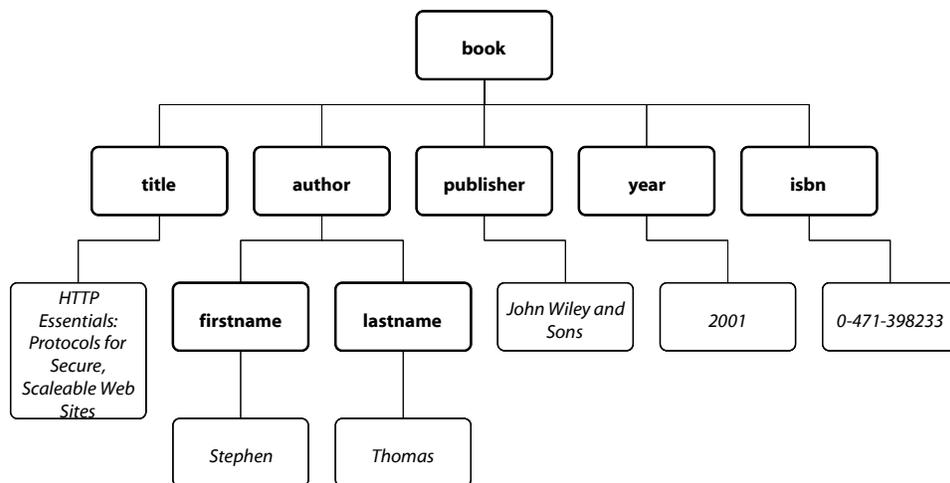
distinguishes different parts of a message with a label known as a *tag*. Tags in the example include <book>, <title>, <author>, <firstname>, etc. A tag can indicate the start of information if it begins with an angle bracket (<), and a tag can indicate the end of information if it begins with an angle bracket and a slash (</>). A beginning tag, ending tag, and the information between the two make up an *element*. In this example the publisher element tells us that the publisher for the book is "John Wiley and Sons."

The figure also shows how an XML message follows a defined structure. Elements can be contained within other elements, as <firstname> and <lastname> are included within the <author> element. This structure indicates that firstname and lastname are "children" of the author "parent."

Although XML elements can contain almost any text, there are two special characters that cannot appear within an element. Those characters are the less-than sign (<) and the ampersand (&). Elements that include these contents must replace the special characters with "&lt;" or "&amp;" respectively. The name of a large telecommunications company, for example, would appear as "AT&T" within an XML message.

Because XML is a text-based format, software has to take extra steps to use XML with binary data. For example, some UPS services return binary image data such as the image of a shipping label. To include this data in an XML message, UPS converts it from binary to text format using an algorithm known as *Base64 encoding*. The "The Base16, Base32, and Base64 Data Encodings" standard, also known as [RFC 3548](#), defines that algorithm.

Although XML messages consist of a series of text characters, most software development tools represent XML messages in a tree-like data structure. That representation clarifies the structure of the message. Figure 12 shows the same XML message as Figure 11, but it uses a more visual representation to highlight the message's structure.



**Figure 12. It is often convenient to show XML messages in a tree-like graph to highlight their structure.**

The example of Figure 11 and Figure 12 is a relatively simple XML message with just a few elements. UPS OnLine Tools rely on XML messages that are larger than this simple example, and it is difficult to show them in a pure graph like Figure 12 without losing legibility. Figure 13 shows an alternate way of depicting the tree-like structure of XML messages; it uses the same example as before.

```
book
├── title
│   └── "HTTP Essentials: Protocols for Secure, Scalable Web Sites"
├── author
│   ├── firstname
│   │   └── "Stephen"
│   └── lastname
│       └── "Thomas"
├── publisher
│   └── "John Wiley and Sons"
├── year
│   └── "2001"
└── isbn
    └── "0-471-398233"
```

**Figure 13. It is possible to show the tree-like structure of XML messages using text.**

A great deal of information on XML is available on the Internet. A good starting point for further research is the World Wide Web Consortium's main page on XML at <http://www.w3.org/XML/>.

## Working with XML in Application Programs

The popularity of Extensible Markup Language means that nearly all development environments include sophisticated support for creating and interpreting XML messages. This subsection provides a brief introduction to working with XML in Microsoft, Java, and Open Source environments. The examples it contains are only representative approaches; many other approaches are possible.

### **Microsoft Visual Studio**

#### **Visual Studio**

The [Microsoft XML Core Services \(MSXML\)](#) offers one way to work with XML documents in Visual Studio applications. Figure 14 shows one approach for creating an XML message in Visual Basic, and Figure 15 demonstrates how Visual Basic programs can interpret XML responses. To remain as simple as possible, the examples do not include any exception handling. Production software should, of course, provide full exception handling.

```
' Define a variable and initialize it to a new XML message
Dim dom
Set dom = New XmlDocument30

' Set properties of the variable
dom.async = False
```

```
dom.validateOnParse = False
dom.resolveExternals = False
dom.preserveWhiteSpace = True

' Identify the message as XML version 1.0
Set node = dom.createProcessingInstruction("xml", "version='1.0'")
dom.appendChild node
Set node = Nothing

' Create the root (book) element and add it to the message
Dim root
Set root = dom.createElement("book")
dom.appendChild root

' Create child elements and add them to the root
Dim node
Set node = dom.createElement("title")
node.text = "HTTP Essentials: ..."
root.appendChild node
Set node = Nothing

Set node = dom.createElement("author")
Dim child
Set child = dom.createElement("firstname")
child.text = "Stephen"
node.appendChild child
Set child = Nothing
Set child = dom.createElement("lastname")
child.text = "Thomas"
node.appendChild child
root.appendChild node

' And so on
```

**Figure 14. Visual Basic can create XML messages through the DOMDocument object.**

```
' Define a variable to hold the parsed message
Dim dom As New DOMDocument30
dom.async = False
dom.validateOnParse = False
dom.resolveExternals = False
dom.preserveWhiteSpace = True

' Try to parse the message
If dom.loadXML(messageText) = False Then
    ' The text did not contain valid XML
End If

' Get the title information from the message
Dim node As IXMLDOMNode
Set node = dom.selectSingleNode("/title")
If node Is Nothing Then
    ' The message did not contain title information
Else
    ' Do something with node.text
End If
```

**Figure 15. Visual Basic can read the contents of XML messages after parsing them with the DOMDocument object.**

Visual Basic also has built-in classes to interpret Base64-encoded values. The `Convert.FromBase64String()` function converts from a Base64-encoded string to an array of 8-bit unsigned integers.

## Java Standard Edition and Enterprise Edition

### Java

The Java API for XML Processing (JAXP) is the preferred approach for working with XML messages in Java. Figure 16 shows how a `BookClass` object can be converted into an XML message, a process that JAXP calls *marshalling*. Similarly, Figure 17 shows the reverse process, where an XML message is converted into a `BookClass` object. This reverse process is *unmarshalling*. As above, exception handling code is omitted from these examples to make them as clear as possible.

```
import javax.xml.bind.JAXBContext;
import javax.xml.bind.Marshaller;
import java.io.StringWriter;

/* create the book object */
BookClass book = new BookClass("HTTP Essentials...",
    new AuthorClass("Stephen", "Thomas"),
    "John Wiley and Sons",
    "2001",
    "0-471-398233");

/* convert it to an XML string */
StringWriter writer = new StringWriter();
JAXBContext context = JAXBContext.newInstance(book.class);
Marshaller m = context.createMarshaller();
m.marshal(book, writer);
```

**Figure 16. JAXP provides a convenient way for Java applications to create XML messages from Java objects.**

```
import javax.xml.bind.JAXBContext;
import javax.xml.bind.Marshaller;
import java.io.StringReader;

/* xmlMessage contains the XML message */
StringReader reader = new StringReader(xmlMessage);
JAXBContext context = JAXBContext.newInstance(Book.class);
Unmarshaller u = context.createUnmarshaller();
BookClass book = (BookClass) u.unmarshal(reader);

/* access properties of the book */
System.out.println(book.getAuthor().getFirstname());
```

**Figure 17. JAXP also gives Java applications a convenient way to retrieve elements from an XML message.**

## Open Source

### Open Source

As of this writing, the most popular open source tool for working with XML is the [xerces](#) project. That project includes C++, Java, and Perl implementations of an XML library. The xerces distribution includes extensive sample applications. The code fragment in Figure 18 demonstrates creating an XML

message in C++ with the xerces library. Figure 19 shows sample code for accessing an element within an XML message. In both cases exception handling is not shown in order to keep the examples as simple as possible. Production software should always contain full exception handling.

```
DOMImplementation* impl =
    DOMImplementationRegistry::getDOMImplementation(X("Core"));

DOMDocument* doc = impl->createDocument(0, X("book"), 0);
DOMElement* rootElem = doc->getDocumentElement();

DOMElement* titleElem = doc->createElement(X("title"));
rootElem->appendChild(titleElem);

DOMText* titleVal = doc->createTextNode(X("HTTP Essentials..."));
titleElem->appendChild(titleVal);
```

**Figure 18. The Xerces C++ library includes classes that can create XML messages.**

```
XMLCh* TAG_book;
XMLCh* TAG_title;
xercesc::XercesDOMParser *parser;

XMLPlatformUtils::Initialize();
TAG_book = XMLString::transcode("book");
TAG_title = XMLString::transcode("title");

parser = new XercesDOMParser;
parser->parse(inputText);
DOMDocument* xmlDoc = parser->getDocument();
DOMElement* elementRoot = xmlDoc->getDocumentElement();
DOMNodeList* children = elementRoot->getChildNodes();
const XMLSize_t nodeCount = children->getLength();
for (XMLSize_t cnt = 0; cnt < nodeCount; ++cnt ) {
    DOMNode* currentNode = children->item(cnt);
    if( currentNode->getNodeType() &&
        currentNode->getNodeType() == DOMNode::ELEMENT_NODE ) {
        DOMELEMENT* currentElement =
            dynamic_cast<xercesc::DOMELEMENT* >( currentNode );
        if( XMLString::equals(currentElement->getTagName(),
                               TAG_title)) {
            /* do something with the title */
        }
    }
}
```

**Figure 19. The Xerces C++ library also supports parsing XML messages to find individual elements.**

---

## Understanding Rates and Service Selection

The rates and service selection OnLine Tools gives applications the ability to look up rates for UPS services and compare the cost of service alternatives. This section describes how these two options work. It also explains negotiated rates.

### Finding the Rate for a Specific Service

If an application knows the specific UPS service desired (such as UPS Next Day Air, or UPS Ground), the tool lets the application find the cost of using that service for a specific shipment or package. The application sends UPS a request indicating the desired service and details about the shipment or package. UPS returns the cost of that service for that shipment or package.

### Comparing Rates for Various Services

An application may also compare the rates available for various services. In this case the application only provides details about the shipment or package and it indicates that it wishes all rates available for that shipment or package. UPS determines which UPS services are available for that shipment or package and returns the cost of all of those services.

### Negotiated Rates

UPS customers that require a high volume of shipments may have negotiated special rates for their shipments that differ from the UPS published rates. When such a customer uses the rates and service selection OnLine Tool, it may indicate in its requests that it wishes to receive negotiated rates in the UPS responses. If the customer is authorized for negotiated rates, and if negotiated rates apply to the particular service, UPS returns those rates along with the published rates in its response.

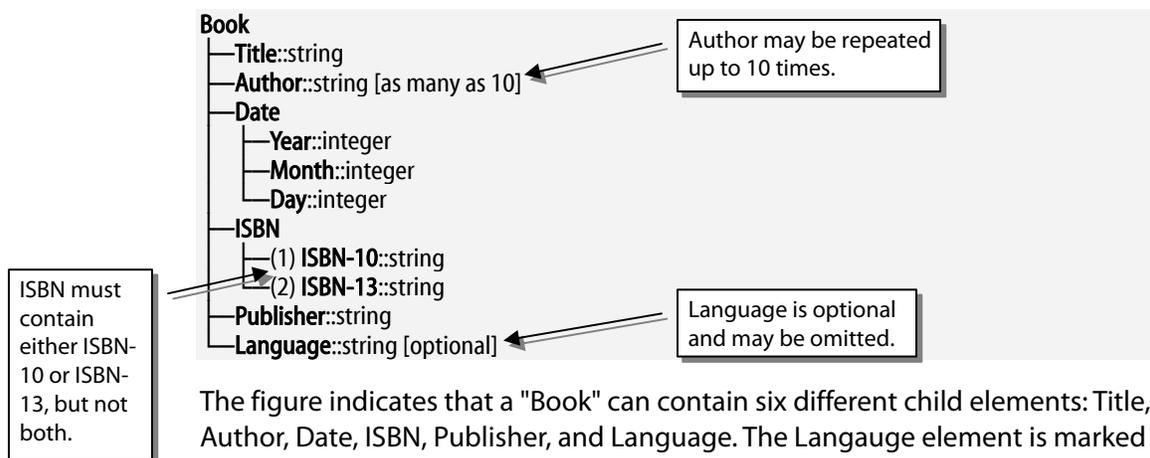
For more information on negotiated rates, including authorization to receive them, please check with your UPS account representative.

## The Rates and Service Selection Reference

This section documents the details of the OnLine Tool messages, including the requests that clients send to UPS and the responses that UPS returns. The first subsection explains the notation that this section uses. It is followed by a section that describes how UPS verifies that client applications are authorized to use the rates and service selection tool. The next subsection defines the messages used for rates and service selection. The final subsection provides a list of error codes.

### Describing OnLine Tools Messages

As noted previously, all messages that UPS OnLine Tools send and receive consist of XML documents. This reference section defines the specific elements within those XML documents. Because XML documents follow a defined structure, this reference shows those elements using a compact, graphical notation. Here is an example of that notation, with some additional annotations to highlight important conventions:



The figure indicates that a "Book" can contain six different child elements: Title, Author, Date, ISBN, Publisher, and Language. The Language element is marked "optional" so it is not required. All of the other five elements are required, however. Notice that the Author element can appear as many as ten times within the Book document. (The technical name for this property is *cardinality*.)

Some of the child elements can themselves contain child elements. The Date element, for example, consists of a Year element, a Month element, and a Day element.

Finally, notice that the children of the ISBN element (ISBN-10 and ISBN-13) have a number in parentheses preceding them. This number indicates a choice. In this example, the ISBN element must have either an ISBN-10 child element or an ISBN-13 child element, but it cannot have both.

If an element has no child elements, the notation convention shows the type of content that the element can contain. In the example, Year, Month, and Day must contain integer numbers, while other primitive elements can contain arbitrary text strings.

## Authenticating Client Applications

UPS OnLine Tools Shipping Services are only available for authorized UPS customers. To enforce this policy, UPS requires that every message that a client application sends include important authentication information. That information is contained in an AccessRequest XML document that must begin each message.

### *AccessRequest*

```
AccessRequest
├─AccessLicenseNumber::string
├─UserId::string
└─Password::string
```

Each AccessRequest contains three child elements: an AccessLicenseNumber, a UserId, and a Password. The following figure shows an example AccessRequest document.

```
<?xml version="1.0" ?>
<AccessRequest xml:lang='en-US'>
  <AccessLicenseNumber>
    YOURACCESSLICENSENUMBER
  </AccessLicenseNumber>
  <UserId>
    YOURUSERID
  </UserId>
  <Password>
    YOURPASSWORD
  </Password>
</AccessRequest>
```

## Rates and Service Selection

The UPS rates and service selection OnLine Tool relies on a single request and response. Client applications request tracking information by sending a RatingServiceSelectionRequest message to UPS. UPS replies with a RatingServiceSelectionResponse message.

### *RatingServiceSelectionRequest*

The RatingServiceSelectionRequest message consists of two complete XML documents. The first document is an AccessRequest. It is immediately followed by a RatingServiceSelectionRequest. When a client application is undergoing testing and integration, the document combination should be sent to the URL:

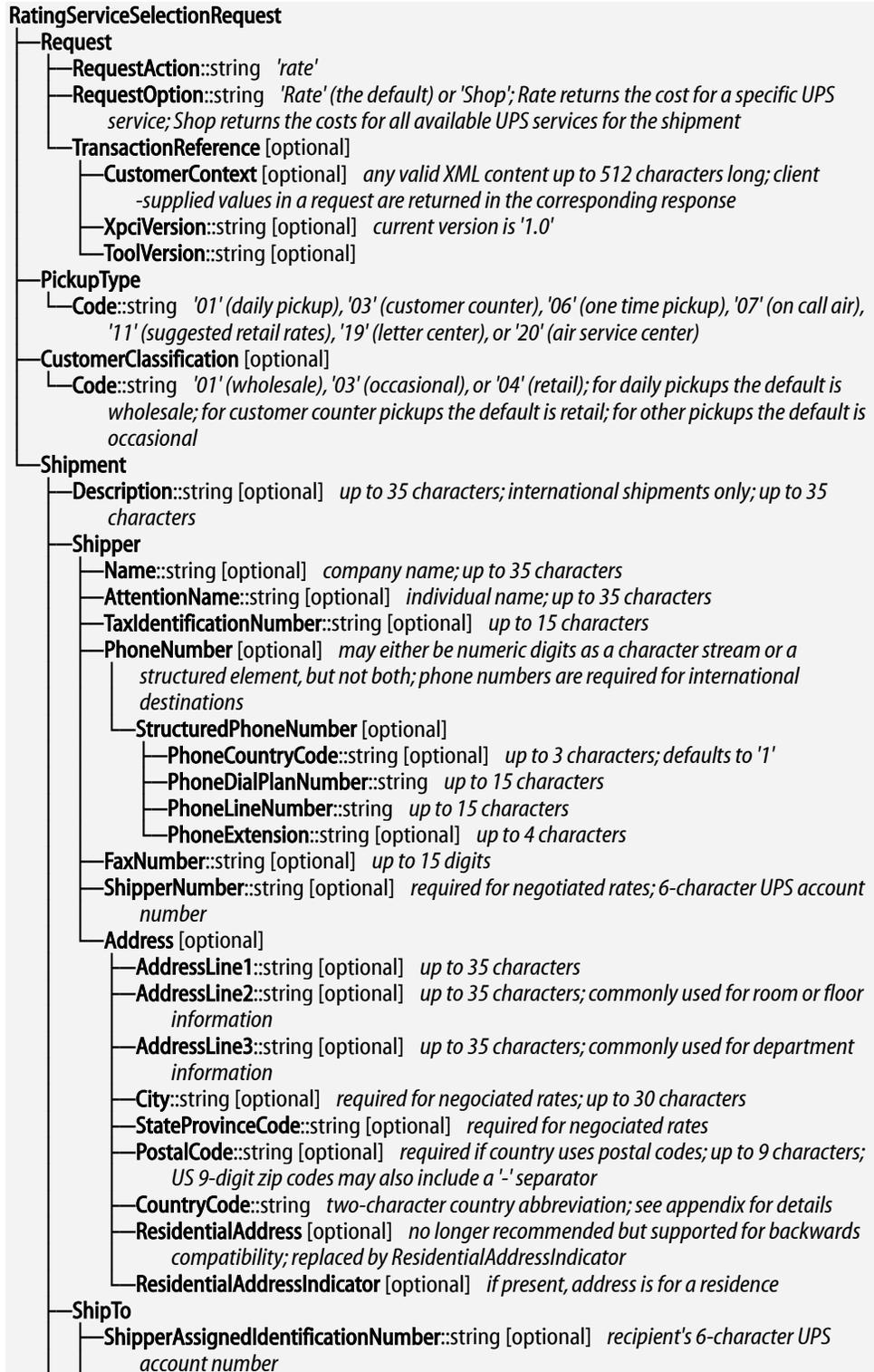
<https://wwwcie.ups.com/ups.app/xml/Rate>

Once a client application is in production, the document combination should be sent to the URL:

<https://www.ups.com/ups.app/xml/Rate>

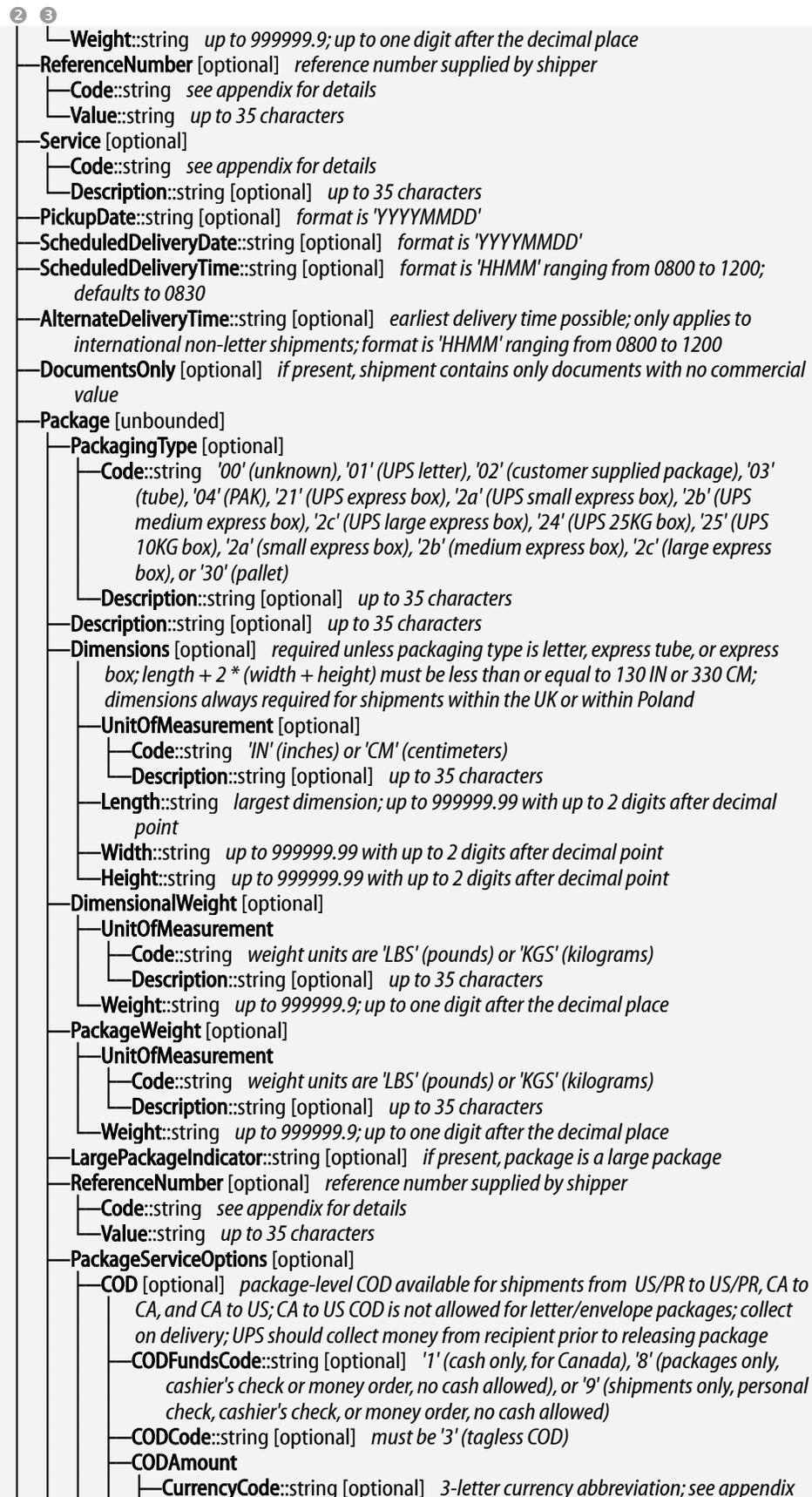
The RatingServiceSelectionRequest document in the request must conform to the following XML structure.

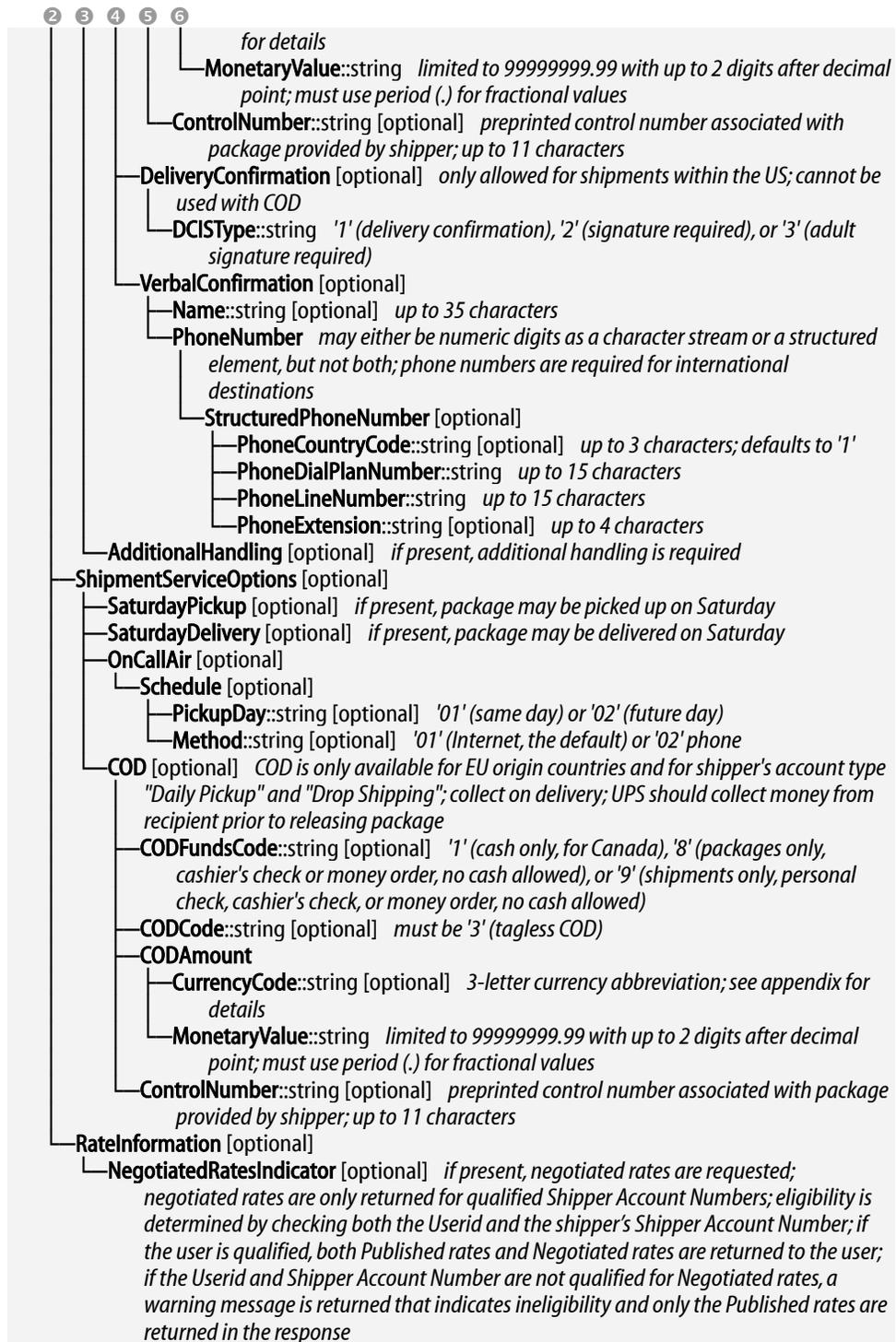
### RatingServiceSelectionRequest XML Details



2 3







### Example RatingServiceSelectionRequest Message

```
<?xml version="1.0" ?>
<AccessRequest xml:lang='en-US'>
  <AccessLicenseNumber>YOURACCESSLICENSENUMBER</AccessLicenseNumber>
  <UserId>YOURUSERID</UserId>
  <Password>YOURPASSWORD</Password>
</AccessRequest>
```

```

<?xml version="1.0" ?>
<RatingServiceSelectionRequest>
  <Request>
    <TransactionReference>
      <CustomerContext>Rating and Service</CustomerContext>
      <XpciVersion>1.0</XpciVersion>
    </TransactionReference>
    <RequestAction>Rate</RequestAction>
    <RequestOption>Rate</RequestOption>
  </Request>
  <PickupType>
    <Code>01</Code>
    <Description>Daily Pickup</Description>
  </PickupType>
  <Shipment>
    <Description>Rate Shopping - Domestic</Description>
    <Shipper>
      <Name>Imani Carr</Name>
      <AttentionName>AT:United Kingdom</AttentionName>
      <TaxIdentificationNumber>444333787618928</TaxIdentificationNumber>
      <PhoneNumber>3057449002</PhoneNumber>
      <FaxNumber>3054439293</FaxNumber>
      <ShipperNumber>ISGB01</ShipperNumber>
      <Address>
        <AddressLine1>Southam Rd</AddressLine1>
        <AddressLine2 />
        <AddressLine3 />
        <City>Dunchurch</City>
        <StateProvinceCode>Warwickshire</StateProvinceCode>
        <PostalCode>CV226PD</PostalCode>
        <CountryCode>GB</CountryCode>
      </Address>
    </Shipper>
    <ShipTo>
      <CompanyName>Belgium</CompanyName>
      <AttentionName>nanananan</AttentionName>
      <PhoneNumber>777778978</PhoneNumber>
      <Address>
        <AddressLine1>5, rue de la Bataille</AddressLine1>
        <AddressLine2 />
        <AddressLine3 />
        <City>Neufchateau</City>
        <PostalCode>6840</PostalCode>
        <CountryCode>BE</CountryCode>
      </Address>
    </ShipTo>
    <ShipFrom>
      <CompanyName>Imani's Imaginarium</CompanyName>
      <AttentionName>AT:United Kingdom</AttentionName>
      <PhoneNumber>3057449002</PhoneNumber>
      <FaxNumber>3054439293</FaxNumber>
      <Address>
        <AddressLine1>Southam Rd</AddressLine1>
        <AddressLine2 />
        <AddressLine3 />
        <City>Dunchurch</City>
        <StateProvinceCode>Warwickshire</StateProvinceCode>
        <PostalCode>CV226PD</PostalCode>
        <CountryCode>GB</CountryCode>
      </Address>
    </ShipFrom>
    <Service><Code>65</Code></Service>
    <PaymentInformation>

```

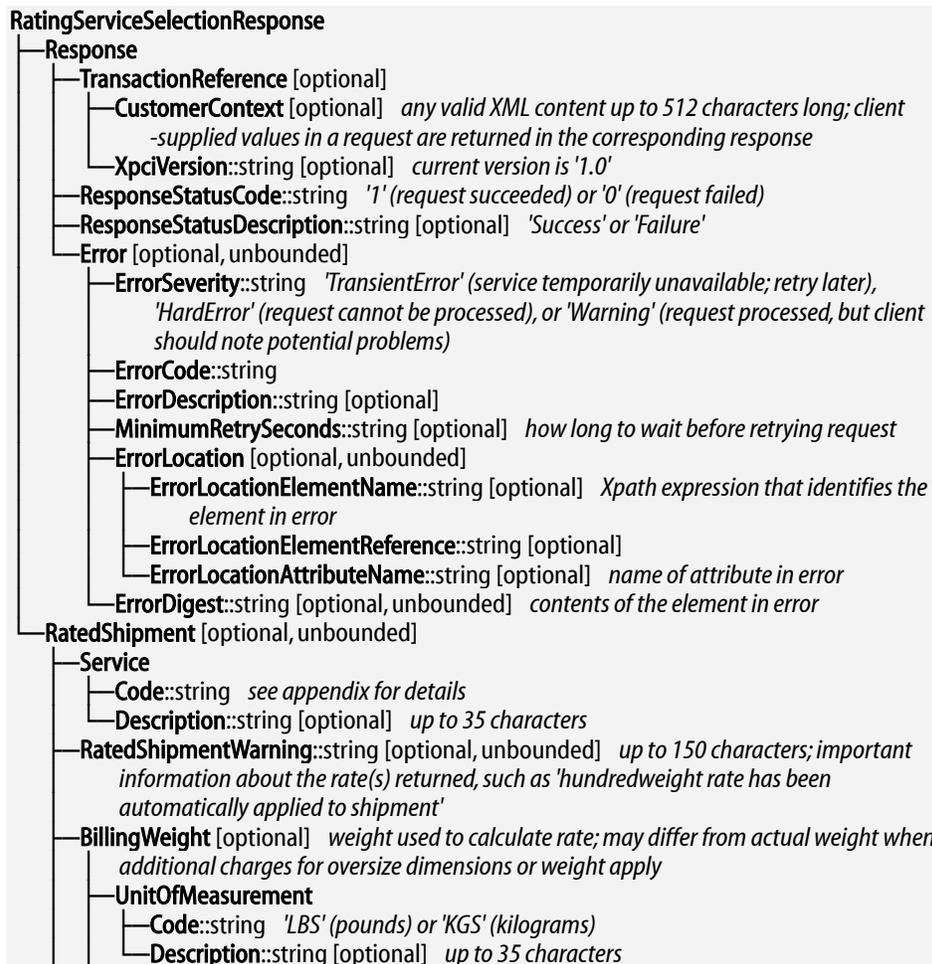
```

    <Prepaid>
      <BillShipper><AccountNumber>ISGB01</AccountNumber></BillShipper>
    </Prepaid>
  </PaymentInformation>
  <Package>
    <PackagingType>
      <Code>04</Code>
      <Description>UPS 25KG Box</Description>
    </PackagingType>
    <Description>Rate</Description>
    <PackageWeight>
      <UnitOfMeasurement>
        <Code>KGS</Code>
      </UnitOfMeasurement>
      <Weight>23</Weight>
    </PackageWeight>
  </Package>
  <ShipmentServiceOptions />
</Shipment>
</RatingServiceSelectionRequest>

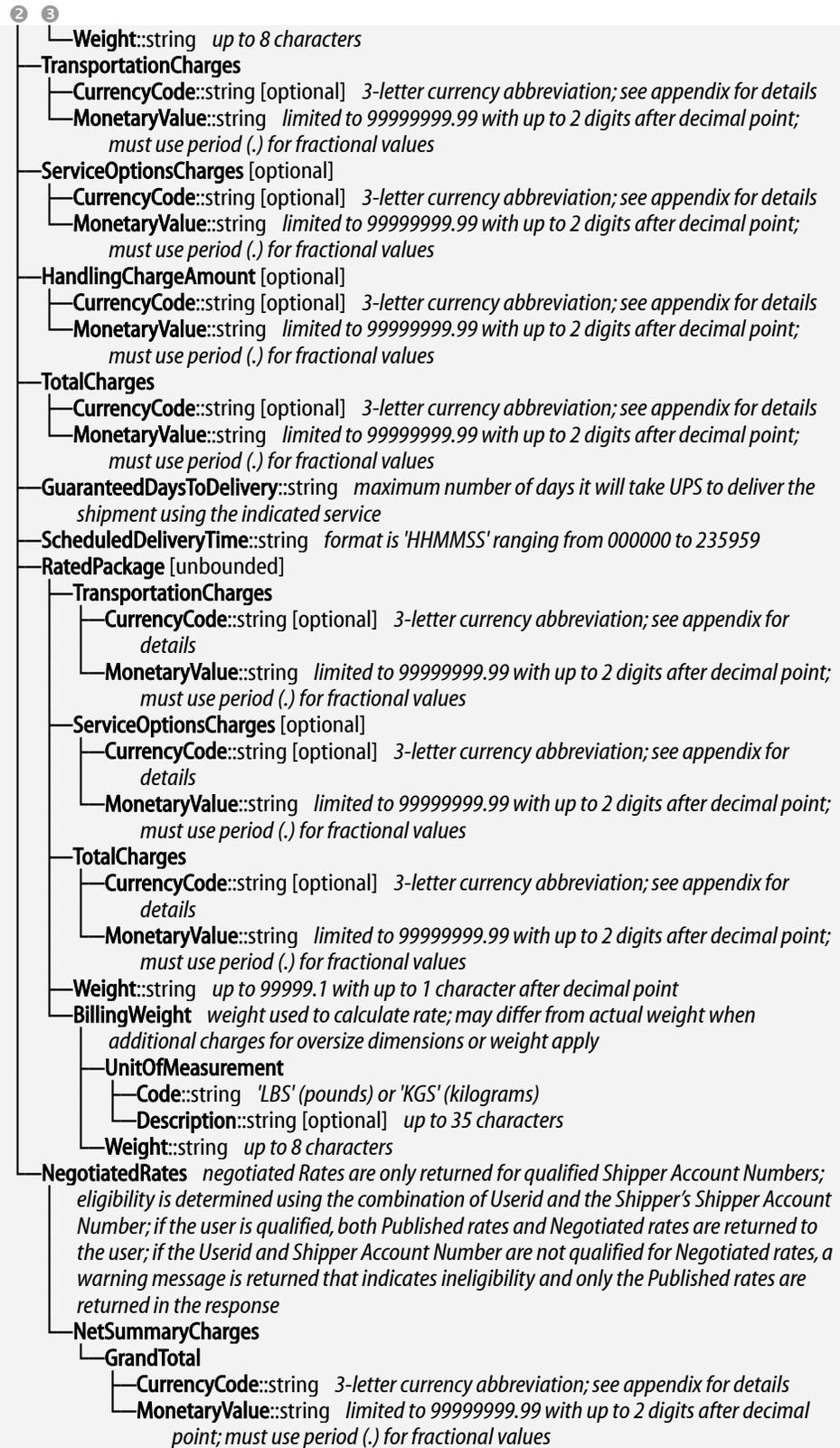
```

## RatingServiceSelectionResponse

TheRatingServiceSelectionResponse message contains a single XML document that conforms to the following XML structure.



2 3



**Example RatingServiceSelectionResponse Message**

```
<?xml version="1.0" ?>
<RatingServiceSelectionResponse>
  <Response>
    <TransactionReference>
      <CustomerContext>Rating and Service</CustomerContext>
      <XpciVersion>1.0</XpciVersion>
    </TransactionReference>
    <ResponseStatusCode>1</ResponseStatusCode>
    <ResponseStatusDescription>Success</ResponseStatusDescription>
  </Response>
  <RatedShipment>
    <Service>
      <Code>65</Code></Service>
    <BillingWeight>
      <UnitOfMeasurement><Code>KGS</Code></UnitOfMeasurement>
      <Weight>23.0</Weight>
    </BillingWeight>
    <TransportationCharges>
      <CurrencyCode>UKL</CurrencyCode>
      <MonetaryValue>73.65</MonetaryValue>
    </TransportationCharges>
    <ServiceOptionsCharges>
      <CurrencyCode>UKL</CurrencyCode>
      <MonetaryValue>0.00</MonetaryValue>
    </ServiceOptionsCharges>
    <TotalCharges>
      <CurrencyCode>UKL</CurrencyCode>
      <MonetaryValue>73.65</MonetaryValue>
    </TotalCharges>
    <GuaranteedDaysToDelivery>0</GuaranteedDaysToDelivery>
    <RatedPackage>
      <TransportationCharges>
        <CurrencyCode>UKL</CurrencyCode>
        <MonetaryValue>0.00</MonetaryValue>
      </TransportationCharges>
      <ServiceOptionsCharges>
        <CurrencyCode>UKL</CurrencyCode>
        <MonetaryValue>0.00</MonetaryValue>
      </ServiceOptionsCharges>
      <TotalCharges>
        <CurrencyCode>UKL</CurrencyCode>
        <MonetaryValue>0.00</MonetaryValue>
      </TotalCharges>
      <Weight>23.0</Weight>
      <BillingWeight>
        <UnitOfMeasurement>
          <Code>KGS</Code>
        </UnitOfMeasurement>
        <Weight>0.0</Weight>
      </BillingWeight>
    </RatedPackage>
  </RatedShipment>
</RatingServiceSelectionResponse>
```

## Error Codes

To discover errors, check the `ResponseStatusCode` element. A "1" normally indicates a successful response, whereas a "0" indicates an error, either Transient or Hard. When an error occurs there will also be an error code, and an error description.

- Success – Successful responses may or may not include **Warnings**.
  - (without warnings) Request is processed as anticipated by the client.
  - (with warnings) *Warning* messages indicate that UPS was able to process the request; however (potentially) unanticipated results have also occurred. The warning contains information in the response that should be passed to the end user.
- Errors – will return two different levels of severity.
  - *Transient* errors are temporary errors, due to temporary high server loads or scheduled maintenance, for example. The application may re-issue the request at a later time.
  - *Hard* errors indicate that an error existed in the request that UPS could not resolve. These errors are critical and prevent requests from processing.

Applications should not re-issue requests with Hard errors without first correcting the error.

The following table lists the errors that UPS may return in response to a request.

Code	Severity	Description
111217	Hard	The requested service is unavailable between the selected locations
111502	Hard	The selected country allows Return Services only
110000	Hard	Rating and Service Selection currently unavailable.
110001	Transient	Rating and Service Selection temporarily unavailable.
110002	Hard	No packages in shipment
110003	Hard	Maximum number of packages exceeded
110005	Hard	This multipiece shipment contains one or more letters.
110006	Hard	Two different shipment notification memos were provided at either the shipment- or package-level. Only one memo is allowed per level.
110050	Hard	Illegal RequestAction
110051	Hard	Illegal RequestOption
110099	Hard	Validation Error: {0}
110101	Hard	Missing/Invalid shipper name
110102	Hard	Missing/Invalid shipper address line 1
110103	Hard	Invalid shipper address line 2

Code	Severity	Description
110104	Hard	Invalid shipper address line 3
110105	Hard	Missing Illegal Shipper/Address/City
110106	Hard	Missing/Illegal Shipper/Address/StateProvCode
110107	Hard	Missing/Illegal Shipper/PostalCode. {0}
110108	Hard	Missing/Illegal Shipper/CountryCode
110109	Hard	Missing Illegal Shipper/PhoneNumber
110110	Hard	Missing/Illegal Shipper/AttentionName
110111	Hard	Shipment/Shipper/EmailAddress cannot exceed a length of 50 characters
110112	Hard	Shipment/Shipper/EmailAddress is an invalid format
110113	Hard	Shipper number must contain alphanumeric charaters only
110114	Hard	Shipper/PhoneNumber/StructuredPhoneNumber/PhoneExtension cannot exceed the length of 4.
110115	Hard	Shipper/PhoneNumber must be at least 10 alphanumeric characters
110116	Hard	Shipper/PhoneNumber/StructuredPhoneNumber/PhoneExtension must contain only numbers
110117	Hard	Shipper/PhoneNumber/StructuredPhoneNumber/PhoneExtension is only available if the shipper is located in US, Puerto Rico or Canada
110118	Hard	Shipper/PhoneNumber/StructuredPhoneNumber/PhoneExtension is only valid if a phone number is given
110119	Hard	Shipper phone number and phone extension together cannot be more than 15 digits long
110120	Hard	The country associated with Shipper/ShipperNumber must be the same as the shipments origin country
110121	Hard	Shipper/ShipperNumber is not an active account
110122	Hard	Invalid Shipper/ShipperNumber
110200	Hard	Missing/Illegal ShipTo/CompanyName
110201	Hard	Missing/Illegal ShipTo/AttentionName
110202	Hard	Missing/Illegal ShipTo/Address/AddressLine1
110203	Hard	Illegal ShipTo/Address/AddressLine2
110204	Hard	Illegal ShipTo/Address/AddressLine3
110205	Hard	Missing/Illegal ShipTo/Address/City
110206	Hard	Missing/Illegal ShipTo/Address/StateProvCode
110207	Hard	Missing/Illegal ShipTo/Address/PostalCode. {0}
110208	Hard	Missing/Illegal ShipTo/Address/CountryCode
110209	Hard	Missing/Illegal ShipTo/PhoneNumber
110210	Hard	Shipment/ShipTo/EmailAddress cannot exceed a length of 50 characters
110211	Hard	Shipment/ShipTo/EmailAddress is an invalid format
110212	Hard	ShipTo/PhoneNumber/StructuredPhoneNumber/PhoneExtension cannot exceed the length of 4.
110213	Hard	ShipTo/PhoneNumber must be at least 10 alphanumeric characters
110214	Hard	ShipTo/PhoneNumber/StructuredPhoneNumber/PhoneExtension must contain only numbers

Code	Severity	Description
110215	Hard	ShipTo/PhoneNumber/StructuredPhoneNumber/PhoneExtension is only available if the shipper is located in US, Puerto Rico or Canada
110216	Hard	ShipTo/PhoneNumber/StructuredPhoneNumber/PhoneExtension is only valid if a phone number is given
110217	Hard	ShipTo phone number and phone extension together cannot be more than 15 digits long
110300	Hard	Missing/Illegal ShipFrom/CompanyName
110301	Hard	Missing/Illegal ShipFrom/AttentionName
110302	Hard	Missing/Illegal ShipFrom/Address/AddressLine1
110303	Hard	Illegal ShipFrom/Address/AddressLine2
110304	Hard	Illegal ShipFrom/Address/AddressLine3
110305	Hard	Missing/Illegal ShipFrom/Address/City
110306	Hard	Missing/Illegal ShipFrom/Address/StateProvCode
110307	Hard	Missing/Illegal ShipFrom/Address/PostalCode. {0}
110308	Hard	Missing/Illegal ShipFrom/Address/CountryCode
110309	Hard	Missing/Illegal ShipFrom/PhoneNumber
110310	Hard	Shipment/ShipFrom/EmailAddress cannot exceed a length of 50 characters
110311	Hard	Shipment/ShipFrom/EmailAddress is an invalid format
110312	Hard	ShipFrom/PhoneNumber/StructuredPhoneNumber/PhoneExtension cannot exceed the length of 4.
110313	Hard	ShipFrom/PhoneNumber must be at least 10 alphanumeric characters
110314	Hard	ShipFrom/PhoneNumber/StructuredPhoneNumber/PhoneExtension must contain only numbers
110315	Hard	ShipFrom/PhoneNumber/StructuredPhoneNumber/PhoneExtension is only available if the shipper is located in US, Puerto Rico or Canada
110316	Hard	ShipFrom/PhoneNumber/StructuredPhoneNumber/PhoneExtension is only valid if a phone number is given
110317	Hard	The ShipFrom country must be the same as the Shipper country
110318	Hard	ShipFrom phone number and phone extension together cannot be more than 15 digits long
110400	Hard	The shipment is missing payment information.
110401	Hard	Missing/Illegal PaymentInformation/Prepaid/BillShipper
110402	Hard	Missing/Illegal PaymentInformation/Prepaid/BillShipper/CreditCardType
110403	Hard	Missing/Illegal PaymentInformation/Prepaid/BillShipper/CreditCardNumber
110404	Hard	Missing/Illegal PaymentInformation/Prepaid/BillShipper/CreditCardExpirationDate
110406	Hard	Mismatch Credit Card Type/Credit Card Number
110407	Hard	The credit card you have provided in PaymentInformation/Prepaid/BillShipper/CreditCard has expired
110408	Hard	Missing PaymentInformation/Prepaid/BillShipper/CreditCard/Type
110409	Hard	Error validating backup credit card

Code	Severity	Description
110410	Hard	One payment method allowed for PaymentInformation/Prepaid/BillShipper
110411	Hard	PaymentInformation/Prepaid/BillShipper/CreditCard is not allowed for shipments whose origin is not US or Puerto Rico
110412	Hard	Missing/Invalid PaymentmentInformation/Prepaid/BillShipper/AccountNumber
110413	Hard	The shipper number PaymentmentInformation/Prepaid/BillShipper/AccountNumber cannot be billed because the account in not active
110414	Hard	Credit card authorization failed, contact your financial institution
110500	Hard	Missing/Illegal Service/Code
110501	Hard	Invalid Shipment/ReferenceNumber/Value
110502	Hard	InvoiceLineTotal/MonetaryValue must be greater than 0
110503	Hard	Shipment/Description must not exceed the length of 35 characters
110504	Hard	InvoiceLineTotal is not allowed for this shipment
110505	Hard	Saturday Delivery Option cannot be used for this shipment
110506	Hard	Invalid Shipment/ReferenceNumber/Code
110508	Hard	Missing/Invalid ShipmentServiceOptions/OnCallAir/Pickup/PickupDate
110509	Hard	Invalid shipment declared value
110510	Hard	Invalid/Missing ShipmentServiceOptions/OnCallAir/PickupDetails/LatestPickupTime
110511	Hard	Invalid ShipmentServiceOptions/OnCallAir/PickupDetails/PickupDate or Invalid ShipmentServiceOptions/OnCallAir/PickupDetails/EarliestPickupTime or Invalid ShipmentServiceOptions/OnCallAir/PickupDetails/LatestPickupTime
110512	Hard	Shipment/Description is required for this shipment.
110513	Hard	The first Email Address used for Email Shipment Notification exceeds the maximum length of 50 characters.
110514	Hard	Invalid format for first Email Address used for Email Shipment Notification
110515	Hard	ShipmentServiceOptions/ShipmentNotification/EMailMessage/Memo cannot exceed the length of 150 characters
110516	Hard	The first Email Address used for Email Shipment Notification is missing or contains invalid characters
110517	Hard	The second Email Address used for Email Shipment Notification exceeds the maximum length of 50 characters
110518	Hard	The format of the second Email Address entered in for Email Shipment Notification is invalid
110519	Hard	The second Email Address entered in for Email Shipment Notification is missing or contains invalid characters
110520	Hard	For a shipment, the maximum number of Email Addresses allowed for Email Shipment Notifications is 2

Code	Severity	Description
110521	Hard	For a shipment, the maximum number of Memos allowed for Email Shipment Notifications is 1
110522	Hard	Invalid Shipment/AlternateDeliveryTime
110523	Hard	Shipment/DocumentsOnly is invalid with the shipments orgin/destination pair
110524	Hard	Package Pickup Request is not available with this shipment's service
110525	Hard	AlternateDeliveryTime must be between {0} and {1}
110526	Hard	InvoiceLineTotal/MonetaryValue may not exceed the length of 8
110527	Hard	Cannot use multiple types of currency in a shipment
110528	Hard	A shipment can have only one type of UnitOfMeasurement for Dimensions
110529	Hard	A shipment can have only one type of UnitOfMeasurement for a Weight
110530	Hard	ShipmentServiceOptions/OnCallAir/PickupDetails/SuiteRoomID length cannot exceed 8 characters
110531	Hard	ShipmentServiceOptions/OnCallAir/PickupDetails/FloorID length cannot exceed 3 characters
110532	Hard	ShipmentServiceOptions/OnCallAir/PickupDetails/Location length cannot exceed 11 characters
110533	Hard	ShipmentServiceOptions/OnCallAir/PickupDetails/EarliestTimeReady is required
110534	Hard	ShipmentServiceOptions/OnCallAir/PickupDetails/LatestTimeReady is required
110535	Hard	ShipmentServiceOptions/OnCallAir/PickupDetails/ContactInfo/Name is required
110536	Hard	ShipmentServiceOptions/OnCallAir/PickupDetails/ContactInfo/PhoneNumber is required
110537	Hard	Invalid/Missing ShipmentServiceOptions/OnCallAir/PickupDetails/EarliestPickupTime
110538	Hard	On Call Air Pickup Error, {0}
110539	Hard	InvoiceLineTotal/MonetaryValue is required and must be a whole number
110540	Hard	On Call Air Pickup is not available for this shipment
110541	Hard	Shipment/ReferenceNumber is not allowed for this shipment
110542	Hard	Package/ReferenceNumber is not allowed for this shipment
110543	Hard	No more than 2 Shipment/ReferenceNumber can be given per shipment
110544	Hard	No more than 2 Package/ReferenceNumber can be given per package
110545	Hard	Shipment/Description is not valid with this shipment
110546	Hard	{0} is not a valid unit of measurement for weight for this shipment
110547	Hard	{0} is not a valid unit of measurement for dimensions for this shipment
110548	Hard	A shipment cannot have a KGS/IN or LBS/CM as its unit of measurements
110600	Hard	Missing/Invalid Package/PackagingType/Code

Code	Severity	Description
110601	Hard	Missing/Illegal Package/PackageWeight/Weight
110602	Hard	Missing/Illegal Combination of Package/Dimensions
110603	Hard	Illegal Package/Reference/Value
110604	Hard	Invalid package declared value
110605	Hard	Mismatch PackageDimensions/PackageType
110606	Hard	Mismatch PackageDimensions/PackageType/PackageWeight
110607	Hard	Illegal Package Reference/Code
110608	Hard	Package/PackageWeight/Weight is required
110609	Hard	All Package Dimensions required and each must be greater than 0
110610	Hard	Invalid PackageServiceOptions/COD/CODAmount/MonetaryValue
110611	Hard	PackageServiceOptions/VerbalConfirmationContactInfo/Name cannot exceed a length of 35
110612	Hard	PackageServiceOptions/VerbalConfirmation/ContactInfo/PhoneNumber cannot exceed the length of 15
110613	Hard	PackageServiceOptions/VerbalConfirmation/ContactInfo/PhoneNumber must be at least 10 alphanumeric characters
110614	Hard	PackageServiceOptions/VerbalConfirmation/PhoneNumber/StructuredPhoneNumber/PhoneExtension cannot exceed the length of 4
110615	Hard	PackageServiceOptions/VerbalConfirmation/PhoneNumber/StructuredPhoneNumber/PhoneExtension must contain numbers only
110616	Hard	Package/PackageWeight/Weight cannot exceed a length of 5
110617	Hard	Package declared value cannot exceed a value of 999
110618	Hard	PackageServiceOptions/VerbalConfirmation/ContactInfo/Name/ is required for verbal confirmation of delivery
110619	Hard	PackageServiceOptions/VerbalConfirmation/ContactInfo/PhoneNumber is required for verbal confirmation of delivery
110620	Hard	Package/PackageWeight, Package/DimensionalWeight, Package/OversizePackage and Package/Dimensions do not apply to UPS Envelopes
110621	Hard	Package declared value cannot be greater than {0} {1}
110622	Hard	Package/Description is required
110623	Hard	Invalid Package/Description
110624	Hard	A Return Shipment can only have one package
110625	Hard	Invalid/Missing Package/ReturnService/Code
110626	Hard	Invalid COD Funds Code
110627	Hard	Invalid COD Code
110628	Hard	Invalid PackageServiceOptions/LabelDelivery/EmailMessage/ReplyToEmailAddress
110629	Hard	Invalid PackageServiceOptions/LabelDelivery/EmailMessage/EmailAddress
110630	Hard	Invalid PackageServiceOptions/LabelDelivery/EmailMessage/UndeliverableEmailAddress
110631	Hard	Invalid PackageServiceOptions/LabelDelivery/

Code	Severity	Description
		EMailMessage/Memo
110632	Hard	Invalid PackageServiceOptions/LabelDelivery /EMailMessage/Subject
110633	Hard	Invalid PackageServiceOptions/PickupNotification/ EMailMessage/ReplyToEMailAddress
110634	Hard	Invalid PackageServiceOptions/PickupNotification /EMailMessage/EMailAddress
110635	Hard	Invalid PackageServiceOptions/PickupNotification/ EMailMessage/UndeliverableEMailAddress
110636	Hard	Invalid PackageServiceOptions/PickupNotification/ EMailMessage/Memo
110637	Hard	Invalid PackageServiceOptions/PickupNotification EMailMessage/Subject
110638	Hard	Invalid PackageServiceOptions/ReturnNotification/ EMailMessage/ReplyToEMailAddress
110639	Hard	Invalid PackageServiceOptions/ReturnNotification/ EMailMessage/EMailAddress[1]
110640	Hard	Invalid PackageServiceOptions/ReturnNotification/ EMailMessage/EMailAddress[2]
110641	Hard	Invalid PackageServiceOptions/ReturnNotification/ EMailMessage/UndeliverableEMailAddress
110642	Hard	Invalid PackageServiceOptions/ReturnNotification/ EMailMessage/Memo
110643	Hard	Invalid PackageServiceOptions/ReturnNotification/ EMailMessage/Subject
110644	Hard	PackageServiceOptions/LabelDelivery is not valid with the shipments return service type
110645	Hard	PackageServiceOptions/PickupNotification is not valid with the shipments return service
110646	Hard	Package Level COD is not valid for the shipment origin and/or destination
110647	Hard	Invalid COD currency code. Please use the destination country currency code.
110700	Hard	Missing/Illegal LabelSpecification/LabelPrintMethod/Code
110701	Hard	Missing/Illegal LabelSpecification/HTTPUserAgent
110702	Hard	Missing/Illegal Label Specification/LabelImageFormat/Code
110703	Hard	Missing/Illegal Combination of LabelSpecification/LabelStockSize
110704	Hard	Missing/Invalid LabelSpecification/ LabelStockSize/Height
110705	Hard	Missing/Invalid LabelSpecification/ LabelStockSize/Width
110710	Hard	Invalid package Delivery Confirmation type
110801	Hard	Address Validation Error on Shipment/Shipper/Address
110802	Hard	Address Validation Error on Shipment/ShipTo/Address
110803	Hard	Address Validation Error on Shipment/ShipFrom/Address
110971	Warning	Your invoice may vary from the displayed reference rates
111000	Hard	The maximum per package weight for Hazardous Materials is

Code	Severity	Description
		exceeded.
111005	Hard	The COD option cannot be combined with the Return Services option.
111010	Hard	Hazardous materials cannot be shipped using Return Services.
111015	Hard	The Saturday Delivery option cannot be combined with the Return Services option.
111020	Hard	The Delivery Confirmation option cannot be combined with the Return Services option.
111025	Hard	The maximum declared amount was exceeded.
111030	Hard	Packages must weigh more than zero pounds.
111031	Hard	Packages must weigh more than zero kg.
111035	Hard	The maximum per package weight for that service from the selected country is %country.maxPkgWeight% pounds.
111036	Hard	The maximum per package weight for that service from the selected country is %country.maxPkgWeight% kg.
111040	Hard	The Return Services accessories are unavailable with the requested service.
111045	Hard	The Saturday Delivery option is unavailable with the requested service.
111047	Hard	Saturday Delivery may not be combined with this product and container type.
111050	Hard	Package exceeds the maximum size total constraints of %maxLengthGirth% (length + girth where girth is 2 x width plus 2 x height).
111055	Hard	Package exceeds the maximum length constraint of 108 inches.
111056	Hard	This package exceeds the maximum length constraint of 270 cm.
111057	Hard	This measurement system is not valid for the selected country.
111060	Hard	Hazardous Materials cannot be shipped in a UPS Letter.
111063	Hard	The requested accessory cannot be combined with the selected service.
111065	Hard	The shipment of Hazardous Materials to the selected location is unavailable.
111070	Hard	The requested accessory is not allowed with this pickup method.
111075	Hard	The International Declared Value accessory is not valid with a domestic service.
111077	Hard	Hundredweight is not valid for International shipments.
111080	Hard	The Domestic Declared Value accessory is not valid with an international service.
111085	Hard	The requested accessory cannot be added to this shipment.
111086	Hard	Only one Authorized Return Service option is allowed.
111087	Hard	The Authorized Return Service option is not allowed for shipments.
111090	Hard	The requested billing zone is invalid for the selected product.
111091	Hard	The selected service is unavailable to an extended area.
111095	Hard	A zone cannot be determined for the package
111100	Hard	The requested service is invalid for the selected site.
111105	Hard	The requested accessory key is invalid for the selected site.

<b>Code</b>	<b>Severity</b>	<b>Description</b>
111106	Hard	Unsupported country specified.
111107	Hard	An origin postal code must be specified.
111108	Hard	Shipments must have at least 1 package.
111109	Hard	Delivery Area Surcharge Tier is invalid.
111110	Hard	Typically indicates a syntax error in the cfg file
111115	Hard	The COD amount must be greater than zero.
111120	Hard	The COD amount cannot exceed \$1,000 when a cashiers check or money order is requested.
111121	Hard	The COD value entered exceeds the maximum allowed for cash
111125	Hard	The COD amount cannot exceed \$50,000.
111126	Hard	The COD value entered exceeds the maximum allowed for check
111130	Hard	The Saturday Pickup option cannot be combined with the Return Services option.
111135	Hard	The Saturday Pickup option cannot be combined with the Saturday Delivery option.
111140	Hard	The Saturday Pickup option is unavailable with the selected service.
111145	Hard	Only one Delivery Confirmation option is allowed.
111150	Hard	The Delivery Confirmation option is unavailable with the selected service.
111155	Hard	The COD option is unavailable with the selected service.
111160	Hard	The requested accessory option is unavailable with the selected billing option.
111165	Hard	The Verbal Confirmation of Delivery option cannot be combined with the Return Services option.
111170	Hard	The Delivery Confirmation option cannot be combined with the Verbal Confirmation of Delivery option.
111175	Hard	The Verbal Confirmation of Delivery option is unavailable with the selected service.
111180	Hard	Consignee Billing is unavailable with the selected service.
111185	Hard	The selected service is unavailable to the desired country
111190	Hard	Only one Return Services option is allowed.
111195	Hard	The requested billing option is unavailable with the selected service.
111196	Hard	The requested billing option is unavailable with UPS Letters.
111198	Hard	The requested Hundredweight option is unavailable with UPS Letters.
111200	Hard	The requested service Saturday Delivery is unavailable to the selected location.
111205	Hard	The Additional Handling option is unavailable with the selected service.
111206	Hard	The Additional Handling option is unavailable with UPS Letters.
111210	Hard	The requested service is unavailable between the selected locations.
111211	Hard	The requested accessory option is unavailable between the selected locations.
111212	Hard	The requested type of container is unavailable between the selected locations.
111213	Hard	The requested billing option is unavailable between the selected

Code	Severity	Description
		locations.
111214	Hard	Cannot ship between the selected locations.
111215	Hard	The requested service is unavailable to residential destinations.
111217	Hard	The requested service is unavailable between the selected locations.
111220	Hard	The Ship Notification option cannot be combined with the Return Services option.
111222	Hard	A shipment using the Return Services Electronic Return Label option must contain only Goods in Free Circulation.
111225	Hard	The Return Services option is unavailable to the selected location.
111230	Hard	Next Day Air Early AM is unavailable with the selected service.
111231	Hard	Switzerland Domestic Container must weigh greater than or equal to 2 KG.
111232	Hard	Worldwide Express Plus from Europe to Switzerland must be UPS Envelope or document only.
111233	Hard	Next Day Air Early AM is unavailable with Hundredweight.
111235	Hard	No more than %acsGrp.grpLimit% of the following may be combined: %acsGrp.grpMembers%.
111240	Hard	The requested accessory may not be applied to a package more than %accs.limit% time(s).
111245	Hard	The Saturday Pickup option cannot be combined with the Shipper Duty Fees option.
111250	Hard	The Saturday Delivery option cannot be combined with the Shipper Duty Fees option.
111255	Hard	The Shipper Duty Fee option is unavailable with the selected service.
111260	Hard	The Shipper Duty Fee option is unavailable with the selected billing option.
111261	Hard	The requested option is unavailable with the selected service.
111262	Hard	The accessory is not valid with the selected option.
111265	Hard	The requested billing option is unavailable to the selected location.
111266	Hard	The requested currency is not a legal tender in this country.
111275	Hard	Cannot create attribute "%attrName%".
111280	Hard	Cannot remove attribute "%attrName%".
111285	Hard	The postal code %postal% is invalid for %state% %country%.
111286	Hard	%state% is not a valid state abbreviation for %country%.
111290	Hard	The requested billing option is invalid.
111295	Hard	Package %child.index% failed validation in shipment.
111300	Hard	The Shipper Pays Duty - VAT Unpaid option is unavailable with the selected option.
111305	Hard	The Shipper Pays Duty - VAT Unpaid option is unavailable with the selected service.
111310	Hard	The Shipper Pays Duty - VAT Unpaid option is unavailable with the selected billing option.
111315	Hard	The Authorized Return Service option is unavailable with the selected accessory.
111320	Hard	The Authorized Return Service option is unavailable with the

Code	Severity	Description
		selected service.
111325	Hard	The Authorized Return Service is unavailable with the selected billing option.
111330	Hard	The Certificate of Origin is unavailable with the selected accessory.
111335	Hard	The Certificate of Origin is unavailable with the selected service.
111340	Hard	The Certificate of Origin is unavailable with the selected billing option.
111343	Hard	The Certificate of Origin is unavailable from the selected origin.
111345	Hard	The Shipper Export Declaration is unavailable with the selected accessory.
111350	Hard	The Shipper Export Declaration is unavailable with the selected service.
111355	Hard	The Shipper Export Declaration is unavailable with the selected billing option.
111360	Hard	The Worldwide Express Plus is unavailable with the selected service.
111363	Hard	The One Time Pickup is unavailable with the selected service.
111365	Hard	The requested service is not available through the selected acquisition type.
111370	Hard	Unsupported acquisition type.
111375	Hard	The requested service is not valid for shipments with more than 1 package.
111380	Hard	The requested Package service may not be consolidated with the selected shipment service.
111385	Hard	The requested Package billing option does not match the selected shipment billing option.
111390	Hard	The requested Package billing tier does not match the selected shipment billing tier.
111395	Hard	Package consignee "%pkg.dest.company%" does not match the shipment consignee "%ship.dest.company%".
111400	Hard	Package consignee street address "%pkg.dest.street1%" does not match the shipment consignee street address "%ship.dest.street1%".
111405	Hard	Package consignee street address "%pkg.dest.street2%" does not match the shipment consignee street address "%ship.dest.street2%".
111410	Hard	Package consignee street address "%pkg.dest.street3%" does not match the shipment consignee street address "%ship.dest.street3%".
111415	Hard	Package consignee city "%pkg.dest.city%" does not match the shipment consignee city "%ship.dest.city%".
111420	Hard	Package consignee state "%pkg.dest.state%" does not match the shipment consignee state "%ship.dest.state%".
111425	Hard	Package consignee postal code does not match the shipment consignee postal code.
111430	Hard	Package consignee country does not match the shipment consignee country.
111431	Hard	All packages in the shipment must have the same UPS shipper number as the shipment.

Code	Severity	Description
111435	Hard	All packages in the shipment must have the Saturday Delivery option if 1 package has it.
111440	Hard	All packages in the shipment must have the Saturday Pickup option if 1 package has it.
111445	Hard	UPS does not allow Hazardous Materials in shipments consisting of more than one piece.
111447	Hard	UPS does not allow Hazardous Materials in Hundredweight shipments.
111450	Hard	Only one type of Return Service option is allowed per package.
111453	Hard	Hundredweight is not valid with Return Service options.
111455	Hard	All packages in the shipment must have the Return Services option if 1 package has it.
111456	Hard	All packages in the shipment must have the Residential option if 1 package has it.
111457	Hard	Shipments with the Residential option set must have the Residential option set on all packages.
111460	Hard	Shipments cannot exceed a COD amount of \$5000 when requesting a cashiers check or money order.
111465	Hard	The selected Package access method does not match the shipment access method.
111470	Hard	Invalid UPS Hundredweight tier. Not using UPS HundredWeight rates.
111500	Hard	Special rates are unavailable for the selected service using requested containers.
111501	Hard	The selected container is not valid with the requested accessory option.
111502	Hard	The selected country allows Return Services only.
111510	Hard	Unsupported container type requested.
111511	Hard	Unsupported accessory requested.
111512	Hard	Unsupported billing option requested.
111513	Hard	Unsupported service requested.
111515	Hard	Weight of %weight.actual% exceeds maximum for rating the requested container. Using standard package rates.
111519	Hard	The selected Package rating category does not match the shipment rating category.
112000	Hard	Only one type of oversize can be set on a package
112001	Hard	Oversize 1 (%overSize1MinWeight%) or Oversize 2 (%overSize2MinWeight%) or Oversize 3 (%overSize3MinWeight%) waiver invalid.
119020	Warning	When user indicated Residential indicator is different from AMS Classification.
119058	Hard	Shipper Number {0} does not support pallet Contract Service.
119076	Hard	All package types must be pallets.
119077	Warning	A dimensional surcharge has been added to pallet {0}.
119078	Hard	The maximum dimensions for a pallet are 200 cm by 160 cm by 120 cm.
119079	Hard	The requested service is not valid with pallets with a weight greater

Code	Severity	Description
		than 1000kg. Please select Dedicated Package Courier Same Day Service.
119083	Hard	Pallet {0} exceeds maximum weight.
120900	Warning	User ID and /or Shipper Number combination is not qualified to receive Negotiated Rates.
120901	Warning	Negotiated Rates are unavailable at this time. Unable to determine eligibility and/or return rates.
250000	Hard	No XML declaration in the XML document.
250001	Hard	Invalid Access License for the tool. Please re-license.
250002	Hard	Invalid UserID/password.
250003	Hard	Invalid Access License Number.
250004	Hard	Incorrect UserID or Password.
250005	Hard	No Access Identification provided.
250009	Hard	License Number not found in the UPS database.
250019	Hard	Invalid field value.
250047	Hard	License number revoked.
250050	Hard	License system not available.
250052	Hard	Authorization system is currently unavailable.

## Customer Integration Environment

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

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

Please note that while the Customer Integration Environment maintains system availability 24 hours, 7 days each week, there are occasional system down times to allow for server maintenance.

## Negotiated Rates

Negotiated Rates are available in the UPS Customer Integration Environment and are returned when the Negotiated Rate indicator is provided in the rate request. The Negotiated Rates returned do not reflect the contractual rate and may vary.

Also in the Customer Integration Environment the shipper eligibility for Negotiated Rates is not fully verified. For shipper eligibility requirements refer to Negotiated Rates section within UPS Rates & Service Selection.

## ***Rates & Service Selection***

Test your Rates & Service application using valid and invalid date elements including postal codes, weights and package types. This will ensure that your application has the ability to process success and error responses correctly.

## ***Verifying Shipping Rates***

Shipping rates quoted are estimates based on the information supplied. Other shipping charges may apply and the final shipping charge may differ depending upon UPS Account Number and how the package is tendered to UPS. Please see the applicable UPS Rate and Service Guide for details.

When comparing shipment charges between applications and tools providing UPS rates, be sure that the requests are identical. Working through any discrepancies will require knowledge of all parameters posted along with defaults, numeric rounding, and rate table used by the applications being compared.

For more information on UPS Services, refer to the UPS Service Guide at:

<http://www.ups.com/using/svc-index.html>.

You can check your results against the UPS Quick Cost Calculator™ web application located at:

<http://wwwapps.ups.com/servlet/QCCServlet>.

For integration testing, you should direct your test Rate and Service Selection software to:

<https://wwwcie.ups.com/ups.app/xml/Rate>.

Once you have completed your testing, you should direct your software to:

<https://www.ups.com/ups.app/xml/Rate>.

## ***System Availability***

The Customer Integration Environment is available 24 hours a day, 7 days a week.

## ***Server Availability Check***

All of the UPS services work using HTTPS POST. Using the same URL as you point your application to, perform an HTTPS GET. If the server is available, it will reply with the service name, remote user, server port, server name, and servlet path. To see this in action, type the following URL in your web browser:

<https://wwwcie.ups.com/ups.app/xml/Rate>

## Appendix A: Country Codes

UPS country code abbreviations generally follow the recommendations of the International Standards Organization, which publishes a list of currency abbreviations in ISO Standard 3166. The following table lists the ISO country codes that ISO had defined when this document was published. The latest information is available from the [ISO web site](#).

Please note that not all UPS services are available in every country. For more information on UPS services, refer to the latest *UPS Rate and Service Guide* available at <http://www.ups.com>.

Country	Code
Afghanistan	AF
Åland Islands	AX
Albania	AL
Algeria	DZ
American Samoa	AS
Andorra	AD
Angola	AO
Anguilla	AI
Antarctica	AQ
Antigua and Barbuda	AG
Argentina	AR
Armenia	AM
Aruba	AW
Australia	AU
Austria	AT
Azerbaijan	AZ
Bahamas	BS
Bahrain	BH
Bangladesh	BD
Barbados	BB
Belarus	BY
Belgium	BE
Belize	BZ
Benin	BJ
Bermuda	BM
Bhutan	BT
Bolivia	BO
Bosnia and Herzegovina	BA
Botswana	BW
Bouvet Island	BV
Brazil	BR
British Indian Ocean Territory	IO
Brunei Darussalam	BN
Bulgaria	BG
Burkina Faso	BF
Burundi	BI
Cambodia	KH
Cameroon	CM

<b>Country</b>	<b>Code</b>
Canada	CA
Cape Verde	CV
Cayman Islands	KY
Central African Republic	CF
Chad	TD
Chile	CL
China	CN
Christmas Island	CX
Cocos (Keeling) Islands	CC
Colombia	CO
Comoros	KM
Congo	CG
Congo, The Democratic Republic of	CD
Cook Islands	CK
Costa Rica	CR
Côte D'ivoire	CI
Croatia	HR
Cuba	CU
Cyprus	CY
Czech Republic	CZ
Denmark	DK
Djibouti	DJ
Dominica	DM
Dominican Republic	DO
Ecuador	EC
Egypt	EG
El Salvador	SV
Equatorial Guinea	GQ
Eritrea	ER
Estonia	EE
Ethiopia	ET
Falkland Islands (Malvinas)	FK
Faroe Islands	FO
Fiji	FJ
Finland	FI
France	FR
French Guiana	GF
French Polynesia	PF
French Southern Territories	TF
Gabon	GA
Gambia	GM
Georgia	GE
Germany	DE
Ghana	GH
Gibraltar	GI
Greece	GR
Greenland	GL
Grenada	GD
Guadeloupe	GP
Guam	GU
Guatemala	GT
Guernsey	GG

<b>Country</b>	<b>Code</b>
Guinea	GN
Guinea-Bissau	GW
Guyana	GY
Haiti	HT
Heard Island and Mcdonald Islands	HM
Holy See (Vatican City State)	VA
Honduras	HN
Hong Kong	HK
Hungary	HU
Iceland	IS
India	IN
Indonesia	ID
Iran, Islamic Republic of	IR
Iraq	IQ
Ireland	IE
Isle of Man	IM
Israel	IL
Italy	IT
Jamaica	JM
Japan	JP
Jersey	JE
Jordan	JO
Kazakhstan	KZ
Kenya	KE
Kiribati	KI
Korea, Democratic People's Republic of	KP
Korea, Republic of	KR
Kuwait	KW
Kyrgyzstan	KG
Lao People's Democratic Republic	LA
Latvia	LV
Lebanon	LB
Lesotho	LS
Liberia	LR
Libyan Arab Jamahiriya	LY
Liechtenstein	LI
Lithuania	LT
Luxembourg	LU
Macao	MO
Macedonia, The Former Yugoslav Republic of	MK
Madagascar	MG
Malawi	MW
Malaysia	MY
Maldives	MV
Mali	ML
Malta	MT
Marshall Islands	MH
Martinique	MQ
Mauritania	MR
Mauritius	MU
Mayotte	YT
Mexico	MX

<b>Country</b>	<b>Code</b>
Micronesia, Federated States of	FM
Moldova, Republic of	MD
Monaco	MC
Mongolia	MN
Montenegro	ME
Montserrat	MS
Morocco	MA
Mozambique	MZ
Myanmar	MM
Namibia	NA
Nauru	NR
Nepal	NP
Netherlands	NL
Netherlands Antilles	AN
New Caledonia	NC
New Zealand	NZ
Nicaragua	NI
Niger	NE
Nigeria	NG
Niue	NU
Norfolk Island	NF
Northern Mariana Islands	MP
Norway	NO
Oman	OM
Pakistan	PK
Palau	PW
Palestinian Territory, Occupied	PS
Panama	PA
Papua New Guinea	PG
Paraguay	PY
Peru	PE
Philippines	PH
Pitcairn	PN
Poland	PL
Portugal	PT
Puerto Rico	PR
Qatar	QA
Réunion	RE
Romania	RO
Russian Federation	RU
Rwanda	RW
Saint Helena	SH
Saint Kitts and Nevis	KN
Saint Lucia	LC
Saint Pierre and Miquelon	PM
Saint Vincent and The Grenadines	VC
Samoa	WS
San Marino	SM
Sao Tome and Principe	ST
Saudi Arabia	SA
Senegal	SN
Serbia	RS

<b>Country</b>	<b>Code</b>
Seychelles	SC
Sierra Leone	SL
Singapore	SG
Slovakia	SK
Slovenia	SI
Solomon Islands	SB
Somalia	SO
South Africa	ZA
South Georgia and The South Sandwich Islands	GS
Spain	ES
Sri Lanka	LK
Sudan	SD
Suriname	SR
Svalbard and Jan Mayen	SJ
Swaziland	SZ
Sweden	SE
Switzerland	CH
Syrian Arab Republic	SY
Taiwan, Province of China	TW
Tajikistan	TJ
Tanzania, United Republic of	TZ
Thailand	TH
Timor-Leste	TL
Togo	TG
Tokelau	TK
Tonga	TO
Trinidad and Tobago	TT
Tunisia	TN
Turkey	TR
Turkmenistan	TM
Turks and Caicos Islands	TC
Tuvalu	TV
Uganda	UG
Ukraine	UA
United Arab Emirates	AE
United Kingdom	GB
United States	US
United States Minor Outlying Islands	UM
Uruguay	UY
Uzbekistan	UZ
Vanuatu	VU
Venezuela	VE
Viet Nam	VN
Virgin Islands, British	VG
Virgin Islands, U.S.	VI
Wallis and Futuna	WF
Western Sahara	EH
Yemen	YE
Zambia	ZM
Zimbabwe	ZW

## Appendix B: Currency Codes

UPS currency code abbreviations generally follow the recommendations of the International Standards Organization, which publishes a list of currency abbreviations in ISO Standard 4217, for which the latest information is available from the [ISO web site](#). Exceptions are noted in bold in the table below.

Note that countries sometimes change their official currency. UPS may require some time after the introduction of a new currency before it can fully support that currency. In addition, UPS may continue to support the older currency for an interim period in order to provide backwards compatibility. UPS may also require the use of currencies other than the official currency for some countries. For the latest information, please contact your UPS OnLine Tools representative.

Country / Region	Currency	Code
Afghanistan	Afghani	AFN
Albania	Lek	ALL
Algeria	Algerian Dinar	DZD
American Samoa	US Dollar	USD
Andorra	Euro	EUR
Angola	Kwanza	AOA
Anguilla	East Caribbean Dollar	XCD
Antigua And Barbuda	East Caribbean Dollar	XCD
Argentina	Argentine Peso	ARS
Armenia	Armenian Dram	AMD
Aruba	Aruban Guilder	AWG
Australia	Australian Dollar	AUD
Austria	Euro	EUR
Azerbaijan	Azerbaijani Manat	AZN
Bahamas	Bahamian Dollar	BSD
Bahrain	Bahraini Dinar	BHD
Bangladesh	Taka	BDT
Barbados	Barbados Dollar	BBD
Belarus	Belarussian Ruble	BYR
Belgium	Euro	EUR
Belize	Belize Dollar	BZD
Benin	CFA Franc BCEAO	XOF
Bermuda	Bermudian Dollar (customarily known as Bermuda Dollar)	BMD
Bhutan	Indian Rupee	INR
Bhutan	Ngultrum	BTN

<b>Country / Region</b>	<b>Currency</b>	<b>Code</b>
Bolivia	Boliviano	BOB
	Mvdol	BOV
Bosnia & Herzegovina	Convertible Marks	BAM
Botswana	Pula	BWP
Bouvet Island	Norwegian Krone	NOK
Brazil	Brazilian Real	BRL
British Indian Ocean Territory	US Dollar	USD
Brunei Darussalam	Brunei Dollar	BND
Bulgaria	Bulgarian Lev	BGN
Burkina Faso	CFA Franc BCEAO	XOF
Burundi	Burundi Franc	BIF
Cambodia	Riel	KHR
Cameroon	CFA Franc BEAC	XAF
Canada	Canadian Dollar	CAD
Cape Verde	Cape Verde Escudo	CVE
Cayman Islands	Cayman Islands Dollar	KYD
Central African Republic	CFA Franc BEAC	XAF
Chad	CFA Franc BEAC	XAF
Chile	Chilean Peso	CLP
	Unidades de formento	CLF
<b>China</b>	<b>Yuan Renminbi</b>	<b>RMB</b>
Christmas Island	Australian Dollar	AUD
Cocos (Keeling) Islands	Australian Dollar	AUD
Colombia	Colombian Peso	COP
	Unidad de Valor Real	COU
Comoros	Comoro Franc	KMF
Congo	CFA Franc BEAC	XAF
Congo, The Democratic Republic of	Franc Congolais	CDF
Cook Islands	New Zealand Dollar	NZD
Costa Rica	Costa Rican Colon	CRC
Côte D'ivoire	CFA Franc BCEAO	XOF
Croatia	Croatian Kuna	HRK
Cuba	Cuban Peso	CUP
Cyprus	Cyprus Pound	CYP
Czech Republic	Czech Koruna	CZK
Denmark	Danish Krone	DKK
Djibouti	Djibouti Franc	DJF
Dominica	East Caribbean Dollar	XCD
Dominican Republic	Dominican Peso	DOP
Ecuador	US Dollar	USD

Country / Region	Currency	Code
Egypt	Egyptian Pound	EGP
El Salvador	El Salvador Colon	SVC
	US Dollar	USD
Equatorial Guinea	CFA Franc BEAC	XAF
Eritrea	Nakfa	ERN
Estonia	Kroon	EEK
Ethiopia	Ethiopian Birr	ETB
Falkland Islands (Malvinas)	Falkland Islands Pound	FKP
Faroe Islands	Danish Krone	DKK
Fiji	Fiji Dollar	FJD
Finland	Euro	EUR
France	Euro	EUR
French Guiana	Euro	EUR
French Polynesia	CFP Franc	XPF
French Southern Territories	Euro	EUR
Gabon	CFA Franc BEAC	XAF
Gambia	Dalasi	GMD
Georgia	Lari	GEL
Germany	Euro	EUR
Ghana	Cedi	GHC
Gibraltar	Gibraltar Pound	GIP
Greece	Euro	EUR
Greenland	Danish Krone	DKK
Grenada	East Caribbean Dollar	XCD
Guadeloupe	Euro	EUR
Guam	US Dollar	USD
Guatemala	Quetzal	GTQ
Guinea	Guinea Franc	GNF
Guinea-Bissau	Guinea-Bissau Peso	GWP
	CFA Franc BCEAO	XOF
Guyana	Guyana Dollar	GYD
Haiti	Gourde	HTG
Haiti	US Dollar	USD
Heard Island and McDonald Islands	Australian Dollar	AUD
Holy See (Vatican City State)	Euro	EUR
Honduras	Lempira	HNL
Hong Kong	Hong Kong Dollar	HKD
Hungary	Forint	HUF
Iceland	Iceland Krona	ISK
India	Indian Rupee	INR

Country / Region	Currency	Code
Indonesia	Rupiah	IDR
Iran (Islamic Republic of)	Iranian Rial	IRR
Iraq	Iraqi Dinar	IQD
Ireland	Euro	EUR
Israel	New Israeli Sheqel	ILS
Italy	Euro	EUR
Jamaica	Jamaican Dollar	JMD
Japan	Yen	JPY
Jordan	Jordanian Dinar	JOD
Kazakhstan	Tenge	KZT
Kenya	Kenyan Shilling	KES
Kiribati	Australian Dollar	AUD
Korea, Democratic People's Republic of	North Korean Won	KPW
Korea, Republic of	Won	KRW
Kuwait	Kuwaiti Dinar	KWD
Kyrgyzstan	Som	KGS
Lao People's Democratic Republic	Kip	LAK
Latvia	Latvian Lats	LVL
Lebanon	Lebanese Pound	LBP
Lesotho	Rand	ZAR
	Loti	LSL
Liberia	Liberian Dollar	LRD
Libyan Arab Jamahiriya	Libyan Dinar	LYD
Liechtenstein	Swiss Franc	CHF
Lithuania	Lithuanian Litas	LTL
Luxembourg	Euro	EUR
Macao	Pataca	MOP
Macedonia, The Former Yugoslav Republic of	Denar	MKD
Madagascar	Malagascy Ariary	MGA
Malawi	Kwacha	MWK
Malaysia	Malaysian Ringgit	MYR
Maldives	Rufiyaa	MVR
Mali	CFA Franc BCEAO	XOF
Malta	Maltese Lira	MTL
Marshall Islands	US Dollar	USD
Martinique	Euro	EUR
Mauritania	Ouguiya	MRO
Mauritius	Mauritius Rupee	MUR
Mayotte	Euro	EUR

Country / Region	Currency	Code
Mexico	Mexican Peso	MXN
	Mexican Unidad de Inversion (UID)	MXV
Micronesia (Federated States of)	US Dollar	USD
Moldova, Republic of	Moldovan Leu	MDL
Monaco	Euro	EUR
Mongolia	Tugrik	MNT
Montenegro	Euro	EUR
Montserrat	East Caribbean Dollar	XCD
Morocco	Moroccan Dirham	MAD
Mozambique	Metical	MZN
Myanmar	Kyat	MMK
Namibia	Rand	ZAR
	Namibian Dollar	NAD
Nauru	Australian Dollar	AUD
Nepal	Nepalese Rupee	NPR
Netherlands	Euro	EUR
Netherlands Antilles	Netherlands Antillian Guilder	ANG
New Caledonia	CFP Franc	XPF
New Zealand	New Zealand Dollar	NZD
Nicaragua	Cordoba Oro	NIO
Niger	CFA Franc BCEAO	XOF
Nigeria	Naira	NGN
Niue	New Zealand Dollar	NZD
Norfolk Island	Australian Dollar	AUD
Northern Mariana Islands	US Dollar	USD
Norway	Norwegian Krone	NOK
Oman	Rial Omani	OMR
Pakistan	Pakistan Rupee	PKR
Palau	US Dollar	USD
Panama	Balboa	PAB
	US Dollar	USD
Papua New Guinea	Kina	PGK
Paraguay	Guarani	PYG
Peru	Nuevo Sol	PEN
Philippines	Philippine Peso	PHP
Pitcairn	New Zealand Dollar	NZD
Poland	Zloty	PLN
Portugal	Euro	EUR
Puerto Rico	US Dollar	USD
Qatar	Qatari Rial	QAR

<b>Country / Region</b>	<b>Currency</b>	<b>Code</b>
Réunion	Euro	EUR
Romania	New Leu	RON
Russian Federation	Russian Ruble	RUB
Rwanda	Rwanda Franc	RWF
Saint Helena	Saint Helena Pound	SHP
Saint Kitts and Nevis	East Caribbean Dollar	XCD
Saint Lucia	East Caribbean Dollar	XCD
Saint Pierre and Miquelon	Euro	EUR
Saint Vincent and The Grenadines	East Caribbean Dollar	XCD
Samoa	Tala	WST
San Marino	Euro	EUR
São Tome and Principe	Dobra	STD
Saudi Arabia	Saudi Riyal	SAR
Senegal	CFA Franc BCEAO	XOF
Serbia	Serbian Dinar	RSD
Seychelles	Seychelles Rupee	SCR
Sierra Leone	Leone	SLL
Singapore	Singapore Dollar	SGD
Slovakia	Slovak Koruna	SKK
<b>Slovenia</b>	<b>Euro</b>	<b>EUR</b>
Solomon Islands	Solomon Islands Dollar	SBD
Somalia	Somali Shilling	SOS
South Africa	Rand	ZAR
Spain	Euro	EUR
Sri Lanka	Sri Lanka Rupee	LKR
Sudan	Sudanese Dinar	SDD
Suriname	Surinam Dollar	SRD
Svalbard and Jan Mayen	Norwegian Krone	NOK
Swaziland	Lilangeni	SZL
Sweden	Swedish Krona	SEK
Switzerland	Swiss Franc	CHF
	WIR Franc	CHW
	WIR Euro	CHE
Syrian Arab Republic	Syrian Pound	SYP
Taiwan, Province of China	New Taiwan Dollar	TWD
Tajikistan	Somoni	TJS
Tanzania, United Republic of	Tanzanian Shilling	TZS
Thailand	Baht	THB
Timor-Leste	US Dollar	USD
Togo	CFA Franc BCEAO	XOF
Tokelau	New Zealand Dollar	NZD

<b>Country / Region</b>	<b>Currency</b>	<b>Code</b>
Tonga	Pa'anga	TOP
Trinidad And Tobago	Trinidad and Tobago Dollar	TTD
Tunisia	Tunisian Dinar	TND
Turkey	New Turkish Lira	TRY
Turkmenistan	Manat	TMM
Turks And Caicos Islands	US Dollar	USD
Tuvalu	Australian Dollar	AUD
Uganda	Uganda Shilling	UGX
Ukraine	Hryvnia	UAH
United Arab Emirates	UAE Dirham	AED
United Kingdom	Pound Sterling	GBP
United States	US Dollar	USD
United States Minor Outlying Islands	US Dollar	USD
Uruguay	Peso Uruguayo	UYU
	Uruguay Peso en Unidades Indexadas	UYI
Uzbekistan	Uzbekistan Sum	UZS
Vanuatu	Vatu	VUV
Venezuela	Bolivar	VEB
Viet Nam	Dong	VND
Virgin Islands (British)	US Dollar	USD
Virgin Islands (US)	US Dollar	USD
Wallis And Futuna	CFP Franc	XPF
Western Sahara	Moroccan Dirham	MAD
Yemen	Yemeni Rial	YER
Zambia	Kwacha	ZMK
Zimbabwe	Zimbabwe Dollar	ZWD

## Appendix C: UPS Rate Service Codes

UPS offers a wide variety of package delivery services. The following tables list the service code values for shipping services; they are ordered by the origin of the shipment. The next table lists service codes for freight shipments. For more information on UPS services, refer to the latest *UPS Rate and Service Guide* available at <http://www.ups.com>.

### Code United States Domestic Shipments

01	UPS Next Day Air®
02	UPS Second Day Air®
03	UPS Ground
07	UPS Worldwide Express <sup>SM</sup>
08	UPS Worldwide Expedited <sup>SM</sup>
11	UPS Standard
12	UPS Three-Day Select®
13	UPS Next Day Air Saver®
14	UPS Next Day Air® Early A.M. <sup>SM</sup>
54	UPS Worldwide Express Plus <sup>SM</sup>
59	UPS Second Day Air A.M.®
65	UPS Saver

### Code Shipments Originating in United States

01	UPS Next Day Air®
02	UPS Second Day Air®
03	UPS Ground
07	UPS Worldwide Express <sup>SM</sup>
08	UPS Worldwide Expedited <sup>SM</sup>
11	UPS Standard
12	UPS Three-Day Select®
14	UPS Next Day Air® Early A.M. <sup>SM</sup>
54	UPS Worldwide Express Plus <sup>SM</sup>
59	UPS Second Day Air A.M.®
65	UPS Saver

### Code Shipments Originating in Puerto Rico

01	UPS Next Day Air®
02	UPS Second Day Air®
03	UPS Ground
07	UPS Worldwide Express <sup>SM</sup>
08	UPS Worldwide Expedited <sup>SM</sup>
14	UPS Next Day Air® Early A.M. <sup>SM</sup>
54	UPS Worldwide Express Plus <sup>SM</sup>
65	UPS Saver

**Code Shipments Originating in Canada**

01	UPS Express
02	UPS Expedited <sup>SM</sup>
07	UPS Worldwide Express <sup>SM</sup>
08	UPS Worldwide Expedited <sup>SM</sup>
11	UPS Standard
12	UPS Three-Day Select <sup>®</sup>
14	UPS Express Early A.M. <sup>SM</sup>
65	UPS Saver

**Code Shipments Originating in Mexico**

07	UPS Express
08	UPS Expedited <sup>SM</sup>
54	UPS Express Plus
65	UPS Saver

**Code Polish Domestic Shipments**

07	UPS Express
08	UPS Expedited <sup>SM</sup>
11	UPS Standard
54	UPS Worldwide Express Plus <sup>SM</sup>
65	UPS Saver
82	UPS Today Standard <sup>SM</sup>
83	UPS Today Dedicated Courier <sup>SM</sup>
84	UPS Today Intercity
85	UPS Today Express
86	UPS Today Express Saver

**Code Shipments Originating in the European Union**

07	UPS Express
08	UPS Expedited <sup>SM</sup>
11	UPS Standard
54	UPS Worldwide Express Plus <sup>SM</sup>
65	UPS Saver

**Code Shipments Originating in Other Countries**

07	UPS Express
08	UPS Worldwide Expedited <sup>SM</sup>
11	UPS Standard
54	UPS Worldwide Express Plus <sup>SM</sup>
65	UPS Saver

**Code Freight Shipments**

TDCB	Trade Direct Cross Border
TDA	Trade Direct Air
TDO	Trade Direct Ocean
308	UPS Freight LTL
309	UPS Freight LTL Guaranteed
310	UPS Freight LTL Urgent

## Appendix D: Reference Number Codes

Shipments and packages may include a reference number. The type of reference number may be indicated by a reference number code. The following table lists the reference number code values.

<b>Code</b>	<b>Reference Number Type</b>
AJ	Accounts Receivable Customer Account
AT	Appropriation Number
BM	Bill of Lading Number
9V	Collect on Delivery (COD) Number
ON	Dealer Order Number
DP	Department Number
3Q	Food and Drug Administration (FDA) Product Code
IK	Invoice Number
MK	Manifest Key Number
MJ	Model Number
PM	Part Number
PC	Production Code
PO	Purchase Order Number
RQ	Purchase Request Number
RZ	Return Authorization Number
SA	Salesperson Number
SE	Serial Number
ST	Store Number
TN	Transaction Reference Number

## Appendix E: Freight Packaging Types

UPS Freight Services support a variety of packaging types. The following table lists the codes used to designate each type.

Code	Description
BAG	Bag
BAL	Bale
BAR	Barrel
BDL	Bundle
BIN	Bin
BOX	Box
BSK	Basket
BUN	Bunch
CAB	Cabinet
CAN	Can
CAR	Carrier
CAS	Case
CBY	Carboy
CON	Container
CRT	Crate
CSK	Cask
CTN	Carton
CYL	Cylinder
DRM	Drum
LOO	Loose
OTH	Other
PAL	Pail
PCS	Pieces
PKG	Package
PLN	Pipe Line
PLT	Pallet
RCK	Rack
REL	Reel
ROL	Roll
SKD	Skid
SPL	Spool
TBE	Tube
TNK	Tank
UNT	Unit
VPK	Van Pack
WRP	Wrapped

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