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## **PROGRAMME & DEVELOPMENT SERVICES**

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# XML Services

Version 10.0.2

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## **Toolkit**



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## Revision History

XML Services version	Release Date	Comments
5.2	24 <sup>th</sup> April 2016	Minor changes on all schemas for shipment validation to bypass rating when EProcShip flag is on and value is Y.  Refer to XMLServices5.2_ShipmentValidationService.pdf section 3.2 for more information.
5.2	9 <sup>th</sup> June 2016	Minor changes on pickup route code validation and removal of ChargeCard field. Refer to XMLServices5.2_Pickup.pdf revision history for more information.  Minor changes on Shipment validation ECCN field and added LabelRegText elements. Please refer to the XMLServices5.2_ShipmentValidationService.pdf revision history.
5.2	22 <sup>nd</sup> July 2016	Updates on XMLServices5.2_CapabilityAndQuoteService.pdf on section 1.2. on DCT usages. Refer to the document revision history
5.2	10 <sup>th</sup> Nov 2016	Updates on XMLServices5.2_ShipmentValidationService.pdf, Reference_Data.XLS, ToolKit_v5.2.pdf and Shipment UTP document and folders contents.
5.2	8 <sup>th</sup> Dec 2016	Updates on XMLServices5.2_ShipmentValidationService.pdf
6.0	14 <sup>th</sup> Feb 2017	Updates on XMLServices6.0_ShipmentValidationService.pdf XMLServices6.0_Pickup.pdf
6.1	21 <sup>st</sup> June 2017	Updates on a) Toolkit_v6.1.pdf b) XMLServices6.1_ShipmentValidationService.pdf c) XMLServices6.1_CapabilityAndQuoteService.pdf d) XMLServices6.1_CapabilityAndQuoteService_UTP.pdf e) XMLServices6.1_ShipVal_UTP.pdf  No changes and rename the version from v6.0 to v6.1: f) XMLServices6.1_Tracking.pdf g) XMLServices6.1_ShipmentPreparationGuide.pdf h) XMLServices6.1_Routing.pdf i) XMLServices6.1_Pickup.pdf
6.2	21 <sup>st</sup> Nov 2017	Updates on: a) Toolkit_v6.2.pdf b) XMLServices6.2_ShipmentValidationService.pdf c) XMLServices6.2_ShipVal_UTP.pdf d) XMLServices6.2_Pickup.pdf e) XMLServices6.2_Pickup_UTP.doc f) XMLServices6.2_Tracking_UTP.doc g) XMLServices6.2_Tracking.pdf  No changes and rename the version from v6.1 to v6.2:  h) XMLServices6.2_ShipmentPreparationGuide.pdf i) XMLServices6.2_Routing.pdf j) XMLServices6.2_CapabilityAndQuoteService.pdf



		k) XMLServices6.2_CapabilityAndQuoteService_UTP.pdf
6.3	19 <sup>th</sup> Oct 2018	<p>Updates on:</p> <ul style="list-style-type: none"> <li>a) XMLServices6.3_ShipmentValidationService.pdf</li> <li>b) XMLServices6.3_ShipVal_UTP.pdf</li> </ul> <p>No changes and rename the version from v6.2 to v6.3:</p> <ul style="list-style-type: none"> <li>a) XMLServices6.3_Pickup.pdf</li> <li>b) XMLServices6.3_Pickup_UTP.doc</li> <li>c) XMLServices6.3_Tracking_UTP.doc</li> <li>d) XMLServices6.3_Tracking.pdf</li> <li>e) XMLServices6.3_ShipmentPreparationGuide.pdf</li> <li>f) XMLServices6.3_Routing.pdf</li> <li>g) XMLServices6.3_Routing_UTP.pdf</li> <li>h) XMLServices6.3_CapabilityAndQuoteService.pdf</li> <li>i) XMLServices6.3_CapabilityAndQuoteService_UTP.pdf</li> </ul>
10.0	17 <sup>th</sup> Apr 2020	<p>Updated the special service code SF (Direct Signature) Reference_Data.xlsx</p> <p>No changes and rename the version from v6.3 to v10.0:</p> <ul style="list-style-type: none"> <li>a) XMLServices10.0_CapabilityAndQuoteService.pdf</li> <li>b) XMLServices10.0_Pickup.pdf</li> <li>c) XMLServices10.0_Routing.pdf</li> <li>d) XMLServices10.0_ShipmentPreparationGuide.pdf</li> <li>e) XMLServices10.0_ShipmentValidationService.pdf</li> <li>f) XMLServices10.0_Tracking.pdf</li> <li>g) XMLServices10.0_CapabilityAndQuoteService_UTP.pdf</li> <li>h) XMLServices10.0_ImageUpload_UTP.pdf</li> <li>i) XMLServices10.0_Pickup_UTP.pdf</li> <li>j) XMLServices10.0_Routing_UTP.pdf</li> <li>k) XMLServices10.0_ShipVal_UTP.pdf</li> <li>l) XMLServices10.0_Tracking_UTP.pdf</li> </ul>
10.0	7 <sup>th</sup> Dec 2020	<ul style="list-style-type: none"> <li>1) New schema v10 published for Shipment Validation service with new VAT22 fields, Loose BBX and Labelless functionalities</li> <li>2) Rename the v10.0 to v10.0 for other services than Shipment Validation service:</li> </ul> <ul style="list-style-type: none"> <li>a) ToolKit_v10.0.pdf</li> <li>b) XMLServices10.0_CapabilityAndQuoteService.pdf</li> <li>c) XMLServices10.0_Pickup.pdf</li> <li>d) XMLServices10.0_Routing.pdf</li> <li>e) XMLServices10.0_ShipmentPreparationGuide.pdf</li> <li>f) XMLServices10.0_ShipmentValidationService.pdf</li> <li>g) XMLServices10.0_Tracking.pdf</li> <li>h) XMLServices10.0_CapabilityAndQuoteService_UTP.pdf</li> <li>i) XMLServices10.0_ImageUpload_UTP.pdf</li> <li>j) XMLServices10.0_Pickup_UTP.pdf</li> <li>k) XMLServices10.0_Routing_UTP.pdf</li> <li>l) XMLServices10.0_ShipVal_UTP.pdf</li> <li>m) XMLServices10.0_Tracking_UTP.pdf</li> </ul>
10.0	19 <sup>th</sup> March 2021	<p>datatypes_global_v10.xsd file updated:</p> <ul style="list-style-type: none"> <li>1) DeclaredValue field datatype with restriction</li> <li>2) ExportLineItem/Value field datatype with restriction</li> </ul>



		3) ExportLineItem/Weight/Weight field datatype with restriction 4) ExportLineItem/GrossWeight/Weight field datatype with restriction 5) ExportLineItem/Weight/Weight field datatype with restriction 6) SpecialService/ChargeValue field datatype with restriction
10.0.1	25 <sup>th</sup> March 2021	Including revision history for document changes: 1) XMLServices10.0.1_ShipmentValidationService.PDF updates on Incorporating feedback on Total Line Item value derive logic – updated in section 3.15.48.5
10.0.2	5 <sup>th</sup> April 2021	Updating the XML Services Test server for customer certification - <a href="https://xmlpitest-ea.dhl.com/XMLShippingServlet">https://xmlpitest-ea.dhl.com/XMLShippingServlet</a> in below files: 1) runDHLClient.cmd 2) label.properties

Note: Only Major changes will increase the version number.



# 1 Introduction

## 1.1 XML Services

DHL offers XML based online integration platform that provides Product Availability, Transit time and Rating, Shipment Booking, Courier Pickup Booking and Tracking services for DHL Express customers globally from over 140 countries.

Here is how XML services can help DHL customers and vendor partners:

- They can use their shipping and warehouse management systems and still provide access to complete set of DHL shipping services
- They can provide DHL capabilities from their internal shipping sites, Shopping carts and Commerce web sites
- No DHL hardware or software deployed on their site and they can still get visibility to DHL's latest products and service offerings
- They have a standard (XML) and secured (HTTPS and User Authentication) platform to integrate with DHL and they can control the implementation timelines

Below are list of available services or operations:

- Capability Service – Provides list of available product and services for given shipment criteria along with Booking cut-off, Pickup cut-off and Transit times
- Quote Service – Provides total cost along with breakdown of charges for requested product and service combinations
- Routing Service - Validates the origin and destination city and postcodes. Note that these validations are now better performed in Capability Service and hence we recommend users to stop using Routing Service and instead use Capability Service.
- Shipment Validation - Validates shipment data and return Waybill, License Plate and data for label printing
- Label Image utility – Generates DHL compliant label image using the XML response from Shipment Validation
- Pickup Booking – Can request, modify or delete courier pick-up
- Tracking - Obtain shipment details and event visibility filtered by Waybill, License Plate, or Reference Number and Account Number

Here is the process of implementing XML integration with DHL

1. Register via XMLPI Portal to download the latest XMLPI Toolkit.  
Make sure that you have the programming resources experienced with Web Services and XML to work with this toolkit
2. Test Environment Access: Contact DHL Sales to request access to Testing and Certification environment
3. Development: Complete development and XML integration work
4. Certification: Contact DHL to request certification by providing Label image and Request and Response XML messages as recommended in Test Plan in the toolkit. These are validated by the DHL eCommerce team and then customer is certified as production-ready.
5. Go-Live: After passing certification you will receive access to production environment and then can start using DHL Web Services
6. Production Support: Contact DHL Technical Support team for production support



7. For installing or renewing certificate for XML Services, please refer to Reference\_Data.xls – XML Services Certificate tab sheet.

## 1.2 XML Services Toolkit

This toolkit is provided to DHL clients to help them understand and implement integration with XML Services application.

It contains a detailed description for the format of the request XML messages and response XML messages for each service. Sample request and response XML messages that help understand the structure of the request and response messages are also included. These messages also help to understand the conditions/data values that might result in an error response from XML-PI server.

The toolkit contains a Label Utility tool with user interface that allow user to generate label image from a Shipment Validation Response XML message into Transport label or Archive document or both in PDF, EPL2 or ZPL2 format.

Also included, are three Java tools, detailed below.

- 1) DHLClient: To send an XML request message to the XML Services application.  
This can be directly integrated with the client application or it can be used to understand the method to establish a connection with XML Services.
- 2) generateLabel: This is the label utility that allows the user to generate Transport label or Archive document or both labels in the required supported GLSv3 format with the Shipment Validation XML response received from XML Services application.
- 3) generateAWB: This is used to transform the Shipment Validate XML response into the Transport label and Archive document in an A4 - PDF format using Jasper report.

XML Services is available in three regions and is slightly customized for each region. All three regions are supported by a central application and accessible by same web server address.

- AP-EM Region - Supports countries in Asia, Africa, Australia and Pacific.
- EU Region - Supports countries in Europe.
- AM Region - Supports USA and other countries in North and South Americas.

Please refer to Reference\_Data.xls for the list of countries in each region of supported country deployment. XML Services offers Global XSD schema which available for Pickup, Shipment Validation, Routing, Tracking, DCT Capability & Quote and Image Upload services.

### **Special Notes:**

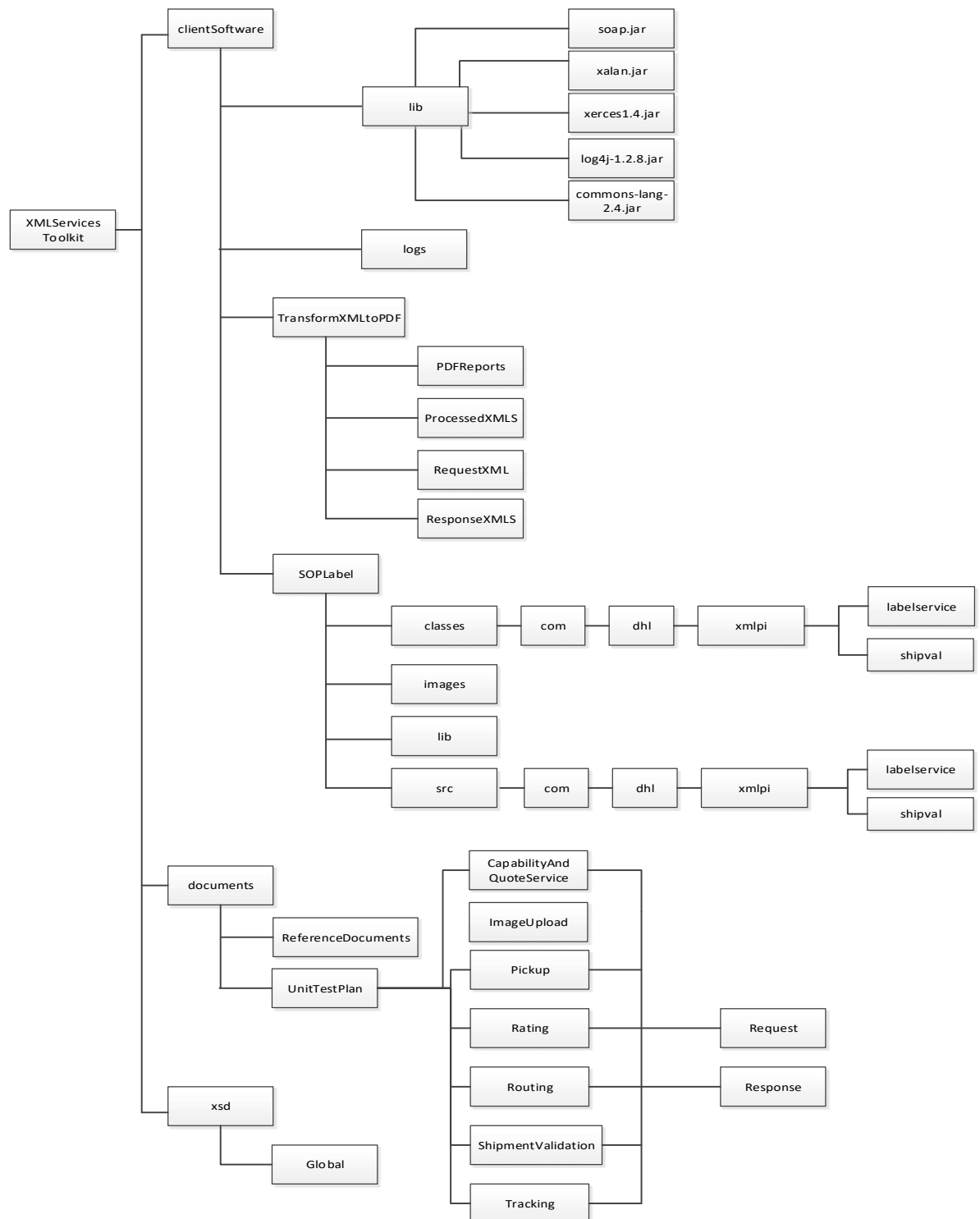
XML Services clients must upgrade to use Tool Kit v6.3 will only utilize the UTF8 feature for extended characters for Shipments Validation and Tracking services. Extended characters that being sent in all other service requests will be treated same as per in v4.6.

XML Services clients that using all other Tool Kit versions than v4.6 cannot utilize UTF-8 feature for any of the services. Tracking response with its shipment event description will be always in English translation.



## 2 Structure of Tool Kit

The toolkit will have the directory structure as shown below: The contents and description of each folder will be explained in the subsequent sections.





## 2.1 Overview

The following section will detail the content of each folder and give a brief description of the contents.

Along with this ToolKit\_v10.0.1.pdf document, there is a Reference Data excel sheet (Reference\_Data.xls) consisting of reference data for each country, currency code, product lists, services list, error messages for each services and other information relevant to the XML Services.

## 2.2 clientSoftware

This folder has the following files:

- 1) DHLClient.java – Simulates a condition where an XML message is sent and received to XML-PI application over HTTP or HTTPS source file
- 2) DHLClient.class – Compiled class file of DHLClient.java source file.
- 3) label.properties – Includes all the path settings for response XMLs, PDF reports, Processed XMLs, server URL, log file path and Customer logo path.
- 4) runDHLClient.cmd – Used to run the DHLClient class to send request messages and receive response messages.
- 5) generateLabel.cmd – Used to generate the Transport label or Archive document or both using GLS label rendering from the Shipment Validation response XML.
- 6) setClassPath.cmd – Used to set the class path.
- 7) SOPLabel directory - The contents of this folder are detailed in section 2.2.3.
- 8) SOPLabel\_Jasper directory - The contents of this folder are detailed in section 2.2.4.
- 9) The TransformXMLtoPDF directory - The contents of this folder are detailed in section 2.2.5.
- 10) log4j.properties – log4j setting to include additional logging at client application level.

A detail of the scripts to execute the tools is included in section 3 – Scripts usage.

### 2.2.1 lib folder

This folder has the following files:

- 1) xalan.jar, xerces1.4.jar : XML Libraries
- 2) soap.jar : SOAP / base64 library.
- 3) log4j-1.2.8.jar : log4j logging library
- 4) commons-lang-2.4.jar: Java utility class



## 2.2.2 logs folder

This folder contains the log file that DHLClient.log that generated via toolkit runDHLClient.cmd sample program with the designated log level.

DHLClient.log filename convention is DHLClient.logMMDD, example: DHLClient.log0623

Note: DHLClient.log filename without MMDD indicates current day log file.

## 2.2.3 SOPLabel (v10.0 new label utility that interface with GLS label rendering)

This folder contains the classes and properties file that need for generating the Transport label, Archive document or both. It has the following sub-folders and files:

- 1) \classes\com\dhl\xmlpi\labelservice  
This folder contains the required class files required for populating request xml and send to server. It also contains Label Utility tool user interface design.
- 2) \classes\com\dhl\xmlpi\shipVal  
This folder contains the class files required in order to parse the label field.
- 3) \images  
This folder contains the DHL logo or Customer Logo image which is used for Label Utility form icon.
- 4) \lib  
This folder contains the jar files which are used for the Label Utility tool.
- 5) \src\com\dhl\xmlpi\labelservice  
This folder contains the source code files required for populating request xml and send to server. It also contains Label Utility tool user interface design.
- 6) \src\com\dhl\xmlpi\shipVal  
This folder contains the source code files required in order to parse the label field.

## 2.2.5 TransformXMLtoPDF

This folder has the following files/directories:

- 1) PDFReports  
The PDF file generated after transformation will be saved in this folder.
- 2) RequestXML  
This directory has the request XML that needs to be sent to the XML Services application. This is used only when the runDHLClient.cmd script is used. If the client is using some other software to send a request XML than this may not be used.
- 3) ResponseXMLS



This directory stores the response XML's that are to be processed for transformation to PDF's. If runDHLClient.cmd script is used, the response XML is directly stored under this directory. While using generateAWB.cmd script, please make sure that the shipment response XML's are in this directory.

#### 4) ProcessedXMLS

After processing the response XML's for transformation to Transport label and Archive document in PDF's the XML's will be moved from the ResponseXMLS directory to this directory.

## 2.3 Documents folder – Reference Documents

This folder has the following files/directories:

ReferenceDocuments – This has the reference documents for all the services offered by XML Services.

- 1) Pickup Service Guide (XMLServices10.0\_Pickup.pdf):  
This would help the XML Services client to understand the pickup service field elements definition and its usage offered in XML Services Pickup service.
- 2) Routing Service Guide (XMLServices10.0\_Routing.pdf):  
This would help the XML Services client to understand the routing service field elements definition and its usage offered in XML Services Routing service.
- 3) Shipment Validation Service Guide (XMLServices10.0.1\_ShipmentValidationService.pdf):  
This would help the XML Services client to understand the shipment validation service field elements definition and its usage offered in XML Services Shipment Validation service.
- 4) Tracking Service Guide (XMLServices10.0\_Tracking.pdf):  
This would help the XML Services client to understand the tracking service field elements definition and its usage offered in XML Services Tracking service.
- 5) Capability and Quote Service Guide (XMLServices10.0\_CapabilityAndQuoteService.pdf):  
This would help the XML Services client to understand the capability and quote service field elements definition and its usage offered in XML Services Capability and Quote service.
- 6) Shipment Preparation Guide (XMLServices10.0\_ShipmentPreparationGuide.pdf):  
This would help the XML Services client to understand the preparation guide for new BBX shipment, PLT shipment and regular shipment offered in XML Services Shipment Validation service.

## 2.4 Documents folder – Unit Test Plan

This folder has the following files/directories:

- 1) UnitTestPlan – This would have the unit test plans and the sample request and response XMLs for each type of messages supported. The details of each directory are described in the subsequent section.



### 2.4.1 Unit Test Plan - Pickup

This directory will have the following files/directories:

For Pickup service, please refer to below documentations:

XMLServices10.0\_Pickup\_UTP.pdf - This is the unit test plan for testing the pickup service. The XML messages that are to be used for testing are in the directories below.

The Request and Response directory has further sub directories respectively”

- i. \Request\Global\BookPickup – Contains sample request XML messages that can be used to test the book pickup functionality.
- ii. \Request\Global\CancelPickup – Contains sample request XML messages to test cancel pickup functionality. (Not applicable for EA region)
- iii. \Request\Global\ModifyPickup – Contains sample request XML messages to test modify pickup functionality. (Not applicable for EA region)
- iv. \Response\Global\BookPickup– contains sample response XML messages corresponding to each request message for book pickup.
- v. \Response\Global\CancelPickup – contains sample response XML messages corresponding to each request message for cancel pickup.
- vi. \Response\Global\ModifyPickup– contains sample response XML messages corresponding to each request message for modify pickup. (Not applicable for EU region).

### 2.4.2 Unit Test Plan - Routing

This directory will have the following files/directories:

XMLServices10.0\_Routing\_UTP.pdf - This is the unit test plan for testing the routing service. The XML messages that are to be used for testing are in the directories below.

The Request and Response directory has further sub directories respectively:

- i. \Request\Global – Contains sample request XML messages to test the routing functionality.
- ii. \Response\Global – Contains sample response XML messages for routing service request messages in above directory.

### 2.4.3 Unit Test Plan - Shipment Validation

This directory will have the following files/directories:

XMLServices10.0\_ShipVal\_UTP.pdf - This is the unit test plan for testing the shipment validation service. The XML messages that are to be used for testing are in the directories below.



The Request and Response directory has further sub directories respectively:

- i. \Request\Global – Contains sample request XML messages to test the shipment validation functionality.
- ii. \Response\Global – Contains sample response XML messages for shipment validation service request messages in above directory.

#### **2.4.4 Unit Test Plan - Tracking**

This directory will have the following files/directories:

XMLServices10.0\_Tracking\_UTP.pdf - This is the unit test plan for testing the tracking service. The XML messages that are to be used for testing are in the directories below.

- i. Request - Contains sample request XML messages to test the tracking functionality.
- ii. Response – Contains sample response XML messages for tracking service request messages in above directory.

#### **2.4.5 Unit Test Plan - Capability and Quote Service**

This directory will have the following files/directories:

XMLServices10.0\_CapabilityAndQuoteService\_UTP.pdf - This is the unit test plan for testing the Capability and Quote service.

The XML messages that are to be used for testing are in the directories below.

- i. Request - Contains sample request XML messages to test the capability and quote functionality.
- ii. Response – Contains sample response XML messages for capability and quote service request messages in above directory.

#### **2.4.6 Unit Test Plan - Image Upload Service**

XMLServices10.0\_ImageUpload\_UTP.pdf - This is the unit test plan for testing the image upload service.

The XML messages that are to be used for testing are in the directories below.

- i. \Request\Global – Contains sample request XML messages to test the image upload functionality.



- ii. \Response\Global – Contains sample response XML messages for image upload service request messages in above directory.

## 2.5 xsd

This will contain the global schema for Pickup, Routing, Shipment Validation, Pickup, Capability & Quote and Routing service.

- i. \Global – Contains global xsd schema for above mentioned services.
- ii. readme.txt - Note for developer Usage on the schema version

## 3 Scripts usage

This section gives a detailed description for using the scripts for sending the request XML message to XML Services and to transform the response shipment XML to Transport label and Archive document.

### 3.1 DHLClient software to send request to XML Services

This script should be run from the directory where the DHLClient.class file is kept. If this script is run from the same directory as provided in the tool kit then no changes need to be done for the directory paths. If the name of the shipment validation request XML file is not 'ShipmentValidation\_v10.0\_CN-NZ\_request.xml', change the script to reflect the correct request xml filename.

#### 3.1.1 Pre requisites

- 1) Java environment must be there in PATH variable.
- 2) SOPLabel or SOPLabel\_Jasper will generate label from shipment validation response of XML-PI with pieces enabled
- 3) Make sure following folders are present inside Customer Tool Kit-
  - a) TransformXMLtoPDF/ResponseXMLS
  - b) TransformXMLtoPDF/ProcessedXMLS
  - c) TransformXMLtoPDF/PDFReports
- 4) The label.properties file is updated correctly
- 5) Set the JAVA\_HOME directory path in setClassPath.cmd
- 6) Check and update the path for soap.jar, xalan.jar, xerces.jar, commons-lang-2.4.jar in SetClassPath.cmd
- 7) Run the setClassPath.cmd script.



```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\mblang>cd C:\Toolkit\clientSoftware
C:\Toolkit\clientSoftware>setClassPath.cmd
C:\Toolkit\clientSoftware>set JAVA_HOME=C:\Program Files\Java\jre1.5.0_22
C:\Toolkit\clientSoftware>set XML_PATH=.\lib
C:\Toolkit\clientSoftware>set CLASSPATH=.;C:\Program Files\Java\jre1.5.0_22\lib;
.\lib\soap.jar;.\lib\xalan.jar;.\lib\xerces1.4.jar
C:\Toolkit\clientSoftware>
```

### 3.1.2 Settings in runDHLClient script

- 1) These variable needs to be set before running the script.

- a) RESPONSE\_PATH=TransformXMLtoPDF\ResponseXMLS\

This path points to the directory where the response XMLs are to be stored. This by default is set to the folder “..\TransformXMLtoPDF\ResponseXMLS\” present in the toolkit. If you need the response XMLs to be stored at some other location please change this path to point to destination accordingly. The directory path may be complete/ relative path.

- b) SERVER\_URL=https://xmlpitest-ea.dhl.com/XMLShippingServlet

This path points to the XML-PI URL which the request must be submitted. This by default points to the XMLShippingTest installation. This can be changed to point to some other XMLPI installation if required.

- c) INPUT\_FILE=TransformXMLtoPDF\RequestXML\ShipmentValidateRequest\_INT\_DUT\_AP\_PieceEnabled\_With2Pcs\_PcsSeg.xml

This path points to the input XML file location. This by default points to “..\TransformXMLtoPDF\RequestXML\ShipmentValidateRequest\_INT\_DUT\_AP\_PieceEnabled\_With2Pcs\_PcsSeg.xml” present in the toolkit. This can be changed to point to some other request file location if required. The file path may be complete/ relative path.

- d) FUTURE\_DAY=false

This parameter indicates to replace the XML request with ‘\*date’ element with future day or remaining as per the request XML value.





- i) With default value of false, it means the '\*date' element value will be remaining same as per request XML value.
- ii) With value of true, it means the '\*date' element will be overwritten with current date + 1 days.

Example:

<Date>2020-12-20</Date> in request XML

Current date is 2017-12-21

Overwritten value will be: <Date>2020-12-22</Date>

- 2) Execute the runDHLClient.cmd by double click in Window Explorer or in command prompt as below.

```

C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\mblang>cd C:\Toolkit\clientSoftware
C:\Toolkit\clientSoftware>setClassPath.cmd
C:\Toolkit\clientSoftware>set JAVA_HOME=C:\Program Files\Java\jre1.5.0_22
C:\Toolkit\clientSoftware>set XML_PATH=.\lib
C:\Toolkit\clientSoftware>set CLASSPATH=.;C:\Program Files\Java\jre1.5.0_22\lib;
.\lib\soap.jar;.\lib\xalan.jar;.\lib\xerces1.4.jar
C:\Toolkit\clientSoftware>runDHLClient.cmd
  
```

- 3) If XML Services Servlet URL is down, runDHLClient.cmd will initiate retry function.

### 3.1.3 runDHLClient script Retry Function

If XML Services Servlet is down, runDHLClient.cmd will initiate retry function. Since 3DNS/ Big IP take about 60 sec approximately to understand the unavailability of XML Services Servlet. Hence, DHLClient is enhanced to auto-retry in the same transaction after 60 seconds to handle IOException. There will be 3 retries for re-connection. Client's integration application that does not use dhlclient program is recommended to build this function in order to cater server failover/ fallback scenario.

The sample code may refer to DHLClient.java which published in Toolkit.

```

try {
    System.out.println("===== Please Wait for " + (timeToSleep / 1000L) + " seconds; Retry
in progress ..... ===== \n");

    Thread.sleep(timeToSleep);
  
```



```

    } catch (InterruptedException e1) {
        System.out.println("Exception while suspending execution of current thread for" + (timeToSleep / 1000L) + "
seconds ." + e1);
        e1.printStackTrace(); }

```

First retry when connection exception occurred.

```

Administrator: C:\windows\system32\cmd.exe - runDHLClient.cmd
opening the connection ..... :http://xmlpitest-ea.dhl.com/XMLShippingServlet
IOException http://xmlpitest-ea.dhl.com/XMLShippingServlet?isUTF8Support=true
===== Please Wait for 60 seconds; Retry in progress ..... =====
WINDOWS OS -> ipconfig /flushdns ->
Windows IP Configuration
Successfully flushed the DNS Resolver Cache.

```

There will be 3 times re-connect to XML Services Servlet URL.

```

Administrator: C:\windows\system32\cmd.exe
===== Please Wait for 60 seconds; Retry in progress ..... =====
WINDOWS OS -> ipconfig /flushdns ->
Windows IP Configuration
Successfully flushed the DNS Resolver Cache.

RETRY =====> 1
opening the connection ..... :http://xmlpitest-ea.dhl.com/XMLShippingServlet
IOException http://xmlpitest-ea.dhl.com/XMLShippingServlet?isUTF8Support=true

RETRY =====> 2
opening the connection ..... :http://xmlpitest-ea.dhl.com/XMLShippingServlet
IOException http://xmlpitest-ea.dhl.com/XMLShippingServlet?isUTF8Support=true

RETRY =====> 3
opening the connection ..... :http://xmlpitest-ea.dhl.com/XMLShippingServlet
IOException http://xmlpitest-ea.dhl.com/XMLShippingServlet?isUTF8Support=true

===== Three <3> retries are done - please contact DHL Support Team =====

Total time taken to process request and respond back to client : 62990ms

```

### 3.1.4 runDHLClient script UTF-8 Functionality

To enable the UTF-8 functionality, you may add “isUTF8Support=true” on the servlet URL.

For example:

<http://xmlpitest-ea.dhl.com/XMLShippingServlet?isUTF8Support=true>

Please note that UTF-8 functionality only applicable for Shipments Validation and Tracking services.

Extended characters that being sent manually (Not via Toolkitv6.1) in all other service requests may experience unexpected result.

User may refer to DHLClient.java file for more information on source coding.

```

if (isUTF8Support) {

```



```
String query = "isUTF8Support=true";
servletURL = new URL(httpURL + "?" + query);
} else {
    servletURL = new URL(httpURL);
}
```

Please note that in this release, the DHLClient is enabled to send UTF-8 characters to XMLPI application for below Services:

1. Shipment Validation
2. Tracking
3. Capability and Quote
4. Pickup
5. Routing

XML Services application behavior will be vary based on which Toolkit is used, which contains isUTF8Support=true parameter in the request header.

Toolkit before version 4.6 does not support UTF-8 request, whereas 4.7 to 10.0 support UTF-8 for Shipment Validation and Tracking Service.

Toolkit v10.0 added Capability, Quote, Pickup and Routing Service to support UTF-8 request.

### 3.1.5 runDHLClient script DNS Flusher

When XML Services Servlet is down, DHLClient has been updated to flush DNS explicitly in underlying user's machine OS (Operating System). It supports Windows, Unix, Linux and MAC OS. If required utility (which trigger OS command) is not installed in client machine, DNS flushing might not work as expected.

DHLClient is using different command for each OS respectively. When encounter "IO Exception" after 3 times retry, please execute below commands from local terminal and retry:

MAC OS: dscacheutil -flushcache (or) killall -HUP mDNSResponder  
WINDOWS OS: ipconfig /flushdns  
Linux/Unix OS: nscd -I hosts (or) dnsmasq restart (or) rndc restart

Note: If encounter any issue while executing above commands, please contact DHL XML Services support team.

### 3.1.6 runDHLClient script with additional logging details

In XML Services v10.0 toolkit, **log4j.properties** with additional logging feature is published in toolkit.

This will allowed the XML Services client to further analyze the response time from sending the XML request to XML Services application and receiving the XML response from XML Services application.



### Pre-requisite:

“%XML\_PATH%\commons-lang-2.4.jar” must be added on runDHLClient.cmd classpath.

```
runDHLClient.cmd - Notepad
File Edit Format View Help
set XML_PATH=.\lib
set CLASSPATH=.;%JAVA_HOME%\lib;%XML_PATH%\soap.jar;%XML_PATH%\xalan.jar;%XML_PATH%\xerces1.4.jar;%XML_PATH%\log4j-1.2.8.jar;%XML_PATH%\commons-lang-2.4.jar
set RESPONSE_PATH=TransformXMLtoPDF\ResponseXMLS\
set SERVER_URL=https://xmlpitest-ea.dhl.com/XMLShippingServlet
set INPUT_FILE=TransformXMLtoPDF\RequestXML\ShipmentValidateRequest_INT_DUT_AP_PieceEnabled_with2Pcs_PcsSeg.xml
set FUTURE_DAY=true
java DHLClient %INPUT_FILE% %SERVER_URL% %RESPONSE_PATH% %FUTURE_DAY%
```

Example of log4j.properties file:

```
log4j.properties - Notepad
File Edit Format View Help
# Root logger option
#log4j.rootLogger=WARN, file
log4j.rootLogger=INFO, file

# Direct log messages to a log file
log4j.appender.file=org.apache.log4j.dailyrollingFileAppender
log4j.appender.file.File=./logs/DHLClient.log
log4j.appender.file.DatePattern=MMdd
log4j.appender.file.layout=org.apache.log4j.PatternLayout
log4j.appender.file.layout.ConversionPattern=%d{yyyy-MM-dd HH:mm:ss,SSS} %X{Delimiter} %-5p %X{Delimiter} %X{IP} %X{Delimiter} %c[%t] %X{Delimiter} %X{messageReference} %X{Delimiter} %m%n
```

1) Only “log4j.rootLogger” logging parameter can be customized:

a) “WARN”

This log level designates potentially harmful situations.

Example:

log4j.rootLogger=WARN, file

b) “INFO”

This log level designates additional informational messages for debug the application.

This is the default value in log4j.properties.

Example:

log4j.rootLogger=INFO, file

Sample log file generated:

2) Sample log file contents with INFO log level:

```
DHLClient.log - Notepad
File Edit Format View Help
2017-10-24 11:38:10,996 INFO 23.252.45.151 DHLClient[main] | START DHLClient
2017-10-24 11:38:11,493 INFO 23.252.45.151 DHLClient[main] | DCTCapabilityDom_01 | Connecting to Server IP: 165.72.205.200 URL:
http://xmlpitest-ea.dhl.com/XMLShippingServlet
2017-10-24 11:38:11,744 INFO 23.252.45.151 DHLClient[main] | DCTCapabilityDom_01 | Connected to IP: 165.72.205.200 URL: http://xmlpitest-
ea.dhl.com/XMLShippingServlet
2017-10-24 11:38:11,745 INFO 23.252.45.151 DHLClient[main] | DCTCapabilityDom_01 | Begin sending request to XML Appl
2017-10-24 11:38:11,746 INFO 23.252.45.151 DHLClient[main] | DCTCapabilityDom_01 | Finish sending request to XML Appl | 1
2017-10-24 11:38:11,746 INFO 23.252.45.151 DHLClient[main] | DCTCapabilityDom_01 | Begin receiving reply from XML Appl
2017-10-24 11:38:12,383 INFO 23.252.45.151 DHLClient[main] | DCTCapabilityDom_01 | Finished receiving reply from XML Appl | 637
2017-10-24 11:38:12,769 INFO 23.252.45.151 DHLClient[main] | DCTCapabilityDom_01 | Response received and saved successfully at
:TransformXMLtoPDF\ResponseXMLS\
2017-10-24 11:38:12,769 INFO 23.252.45.151 DHLClient[main] | DCTCapabilityDom_01 | The file name is :DCTResponse_2017_10_24_11_38_12_753.xml
2017-10-24 11:38:12,771 INFO 23.252.45.151 DHLClient[main] | DCTCapabilityDom_01 | Total time taken to process request and respond back to
client | 1772
2017-10-24 11:38:12,771 INFO 23.252.45.151 DHLClient[main] | DCTCapabilityDom_01 | END DHLClient
2017-10-24 11:39:42,298 INFO 23.252.45.151 DHLClient[main] | START DHLClient
2017-10-24 11:39:42,361 INFO 23.252.45.151 DHLClient[main] | DCTCapabilityInt_01 | Connecting to Server IP: 165.72.205.200 URL:
http://xmlpitest-ea.dhl.com/XMLShippingServlet
```



- 3) Do not make any changes on log4j.appender.file parameter.

## 3.2 Generate Transport label and Archive document Images

**generateLabel.cmd** script will launch the Label Utility tool that interface with GLS label rendering. It allows user to generate either Archive document, Transport label or both labels in different format depends on the user selection.

**generateAWB.cmd** script will generate the Transport label and archive document in PDF file format with the waybill number as the name of the PDF using Jasper report that published in v4.5 toolkit. This script will not work for Global Schema Shipment Response XML.

This script should be run from the directory where the label.properties file is kept. If this script is run from the same directory as provided in the toolkit then no changes need to be done for the properties file paths.

### Pre requisites:

- a) Check and ensure the label.properties file is updated correctly.
- b) Java 1.6 or higher version (you may download from <http://java.sun.com/javase/downloads> for the java upgrade).

### 3.2.1 Settings to execute generateLabel script

- 1) The following paths need to be set in the label.properties file:
  - a) Set XML\_FILE\_PATH to the directory path where the response XML is kept. This path should not include the name of the response XML, all the XML's lying in this directory will be processed
  - b) Set PROCESSED\_XML\_FILE\_PATH to the directory path where the response XML files are kept after label(s) is generated.
  - c) Set RESPONSE\_PATH to specify the directory of the PDF report that will be generated.

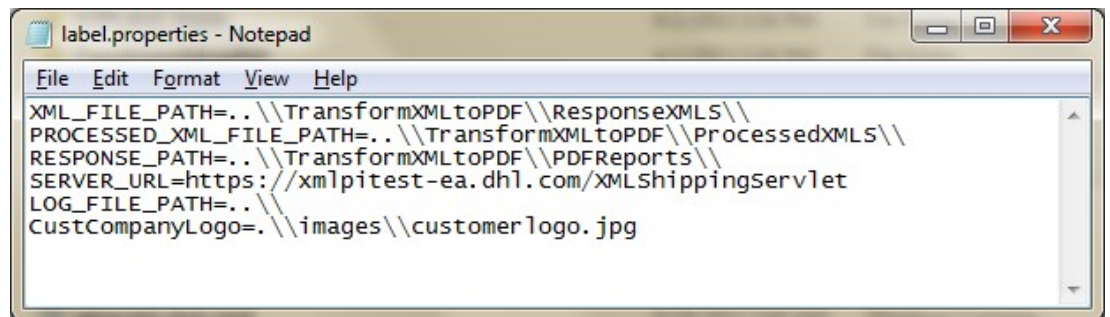
The Transport Label will be generated as Transport\_Label\_<Waybill number>.pdf, the Archive document will be generated as Archive\_Label\_<Waybill number>.pdf and for both Global and Archive in one label will be generated as <Waybill number>.pdf.

- d) Set SERVER\_URL=https://xmlpitest-ea.dhl.com/XMLShippingServlet

This points to the XML Services URL which the request must be submitted. This by default points to the XMLShippingTest installation. This can be changed to point to some other XML Services installation if required.

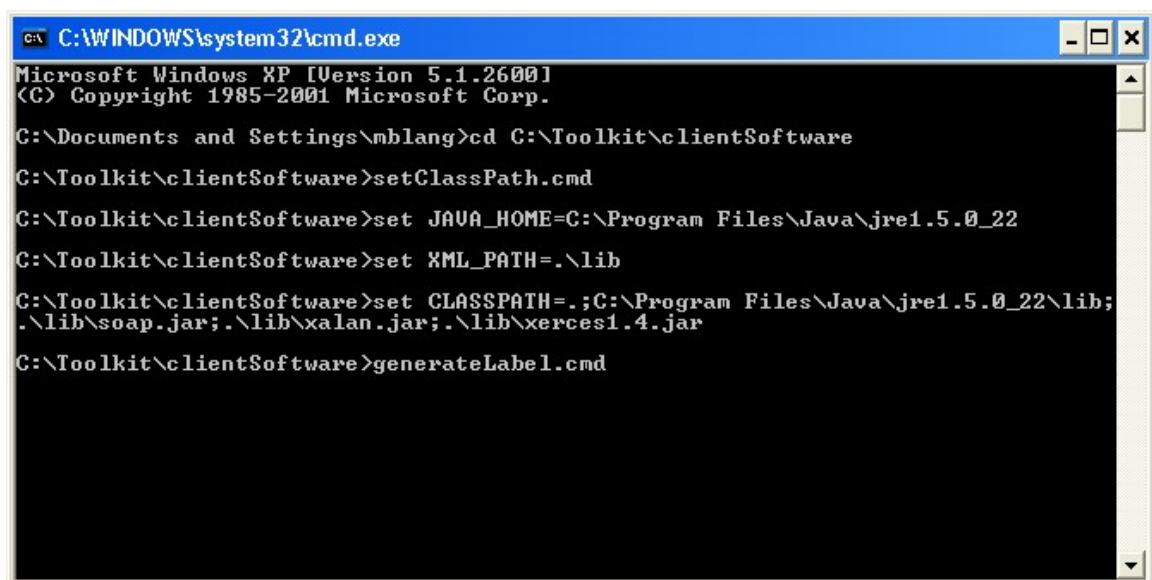


- e) Set LOG\_FILE\_PATH to specify the directory where the Label Utility log file to be stored.
- f) Set CustCompanyLogo to specify the file path where the customer logo image file to be stored.



Note: This tool will default the response XML file path (XML\_FILE\_PATH) which located in TransformXMLtoPDF folder. If the script is being run from the clientSoftware folder than no changes are necessary in the properties file. Only the XML response messages, need to be kept in the correct folder.

2) Double clicks on generateLabel.cmd or run via command prompt and window will be prompt as below:







XML Services v10.0 Label Utility

**Shipment Label**

Shipment Response XML File: C:\Users\imblang\Desktop\MyDHL API\VAT22\WorkingCopy\XMLPI\_VAT22 Browse

Document Type: ☐ Transport ☐ Archive ☐ Custom Invoice ☒ All

Label Template: 8X4\_A4\_PDF

Output Format: PDF

Resolution: 200

Output PDF Location: C:\Users\imblang\Desktop\MyDHL API\VAT22\WorkingCopy\XMLPI\_VAT22 Browse

Printer: Win32 Printer : ZDesigner GK420d (Copy 1)

DHL Logo: ☐

Company Logo: ☐

Hide Account: ☐

Decode: ☒

Submit Close

**File Processing Status**

File Name	Status	Message
-----------	--------	---------

Steps to generate label:

- “Shipment Response XML File:” by default, this path is pointed to XML\_FILE\_PATH which can be configured on label.properties file or user able to choose individual file or folder by clicking the “Browse” button.
- “Document Type:” option allows the user to select the label or document type to be rendered or printed.

“Document Type” options of:

- 1) ‘Transport’:

It is for printing Transport label document for the required ‘Output



- Format’.
- 2) ‘Archive’:  
It is for printing Archive document for the required 'Output Format'.
  - 3) ‘Custom Invoice’:  
It is for printing Custom Invoice document in PDF format.
  - 4) ‘All’:  
Transport label and Archive Document for the required ‘Output Format’ and Custom Invoice document is always in PDF format.

- 5) “Label Template:” allow user opt for desire Transport Label and Archive Document template to be printed.
- 6) “Output Format:” will be enabled if user selects Transport Label and Archive Document Template end with “\_thermal”.

Note: The expected output format’ for ‘Custom Invoice’ type is always in PDF format.

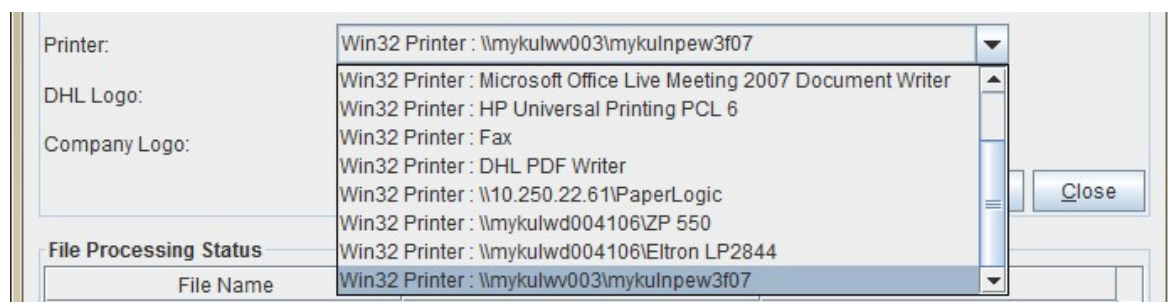
- 7) “Resolution:” allow user to generate thermal label with desire resolution.

- 8) “Output PDF Location:” will be enabled if “PDF” is chosen as label format. By default, this path is pointed to RESPONSE\_PATH which can be configured on label.properties file or user can choose desire location to save the PDF label.





- a) Transport Label and Archive Document generated with <Waybill Number>.pdf naming convention.
  - b) Custom Invoice document generated with <Waybill Number>\_CI.pdf naming convention.
- 9) “Printer:” will be enabled if “Output Format:” has value other than “PDF”. The list of printer is automatically generated based on printers installed on user local machine.



- 10) “DHL Logo:” only applies for thermal label. When checked, DHL Logo will be printed on label. For all label templates in PDF format, DHL Logo will always print on the label.
- 11) “Company Logo:” applies to all type of label. When checked, Label Utility will retrieve the company logo image file and encode it to base64.
- By default, the path of “CustCompanyLogo” can be configured in label.properties file or user can choose desire location to save the company logo image.
- 12) “Hide Account:” applies to all type of Archive Document. When checked, Label Utility will not printed the account number in Archive Document.
- 13) “Decode:” applies to all type of label. When checked, Label Utility will decode the Label Image response that available in the Shipment Validation XML response.
- 14) “Submit” button will send label request that generated by data in response file on clicked. “Close” button will stop this tool on clicked.
- 15) “File Processing Status” panel will show the result once it get the response from server and the result will be saved in a log file located in directory



LOG\_FILE\_PATH that user set in label.properties file.

File Processing Status		
File Name	Status	Message
ShipmentResponse_2013_08_30_...	Success	Successfully Processed as Label Im...

### 3.2.1.1 Label Utility functionality

Depending on the Label Utility GUI selection and Shipment Validation response XML, Label Utility will be performed as below:

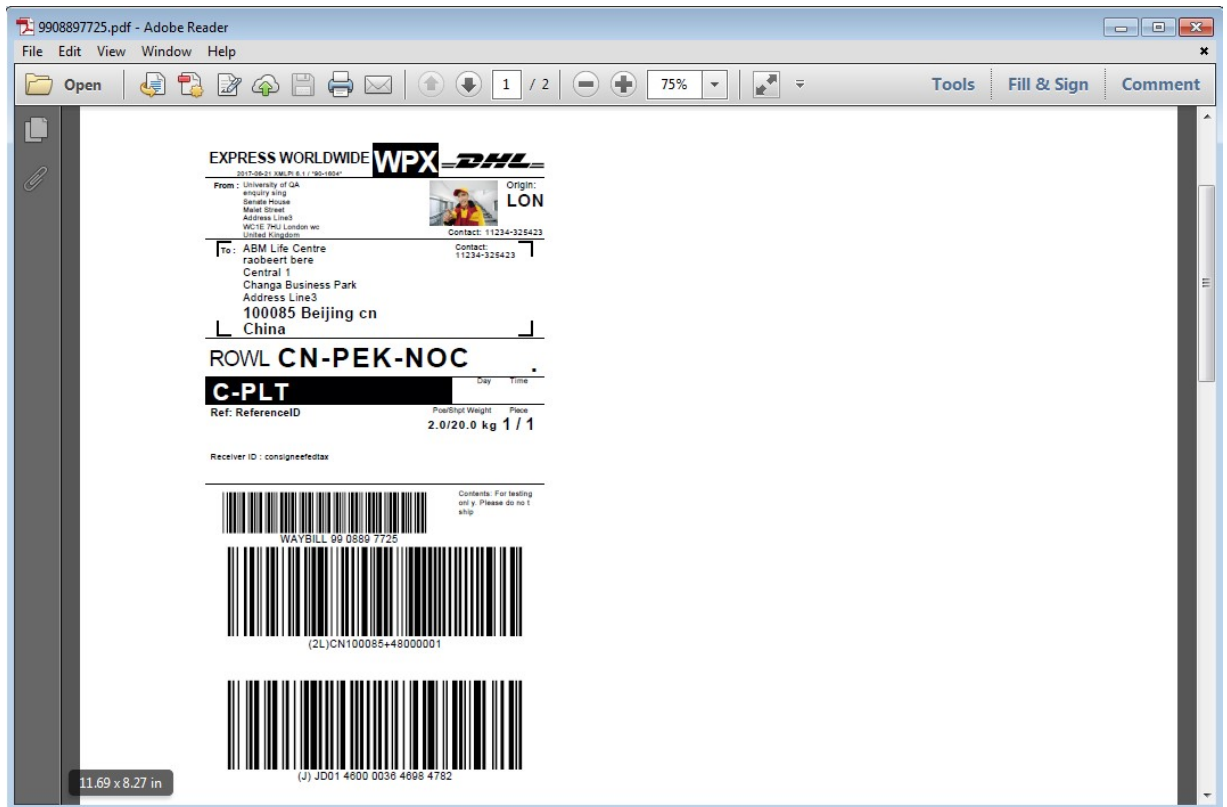
- By selecting 'Decode' option, with valid <OutputImage> element value in response XML, Label Utility will decode the base64 value in <OutputImage> and <MultiLabels><MultiLabel><DocName> element, generate the Transport label, Archive Document or/and Custom Invoice document image file(s) in the configured "PDFReports" folder.
- Without selecting 'Decode' option, Label Utility will generate Transport label, Archive Document or/and Custom Invoice based on the "Label Template" and "Output Format" options respectively in Label Utility GUI selection
- Shipment Validation request's element of <Resolution> or <LabelTemplate> will not be used by Label Utility to determine whether new label or document to be generated.

### 3.2.1.2 Print the Transport label, Archive document, Custom Invoice or All

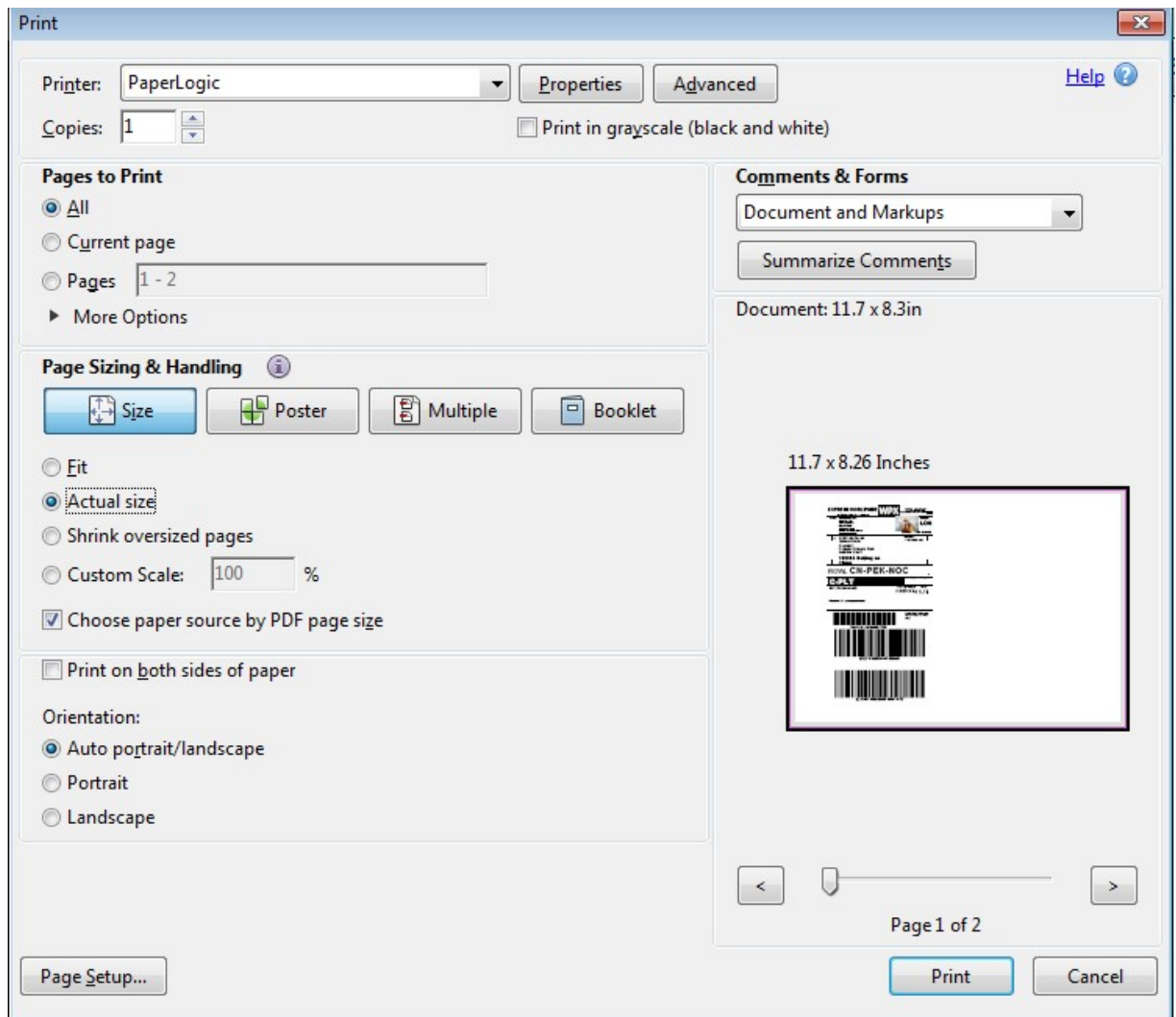
After execute section 3.2.1 with PDF output format is selected, the PDF report is stored at the location Toolkit\clientSoftware\TransformXMLtoPDF\PDFReports with the waybill number as the name of the pdf document and is ready for printing.

Steps to print Transport label, Archive Document and Custom Invoice document:

- Open the PDF report using Adobe Reader which is specified in ..\TransformXMLtoPDF\PDFReports path defined in label.properties.



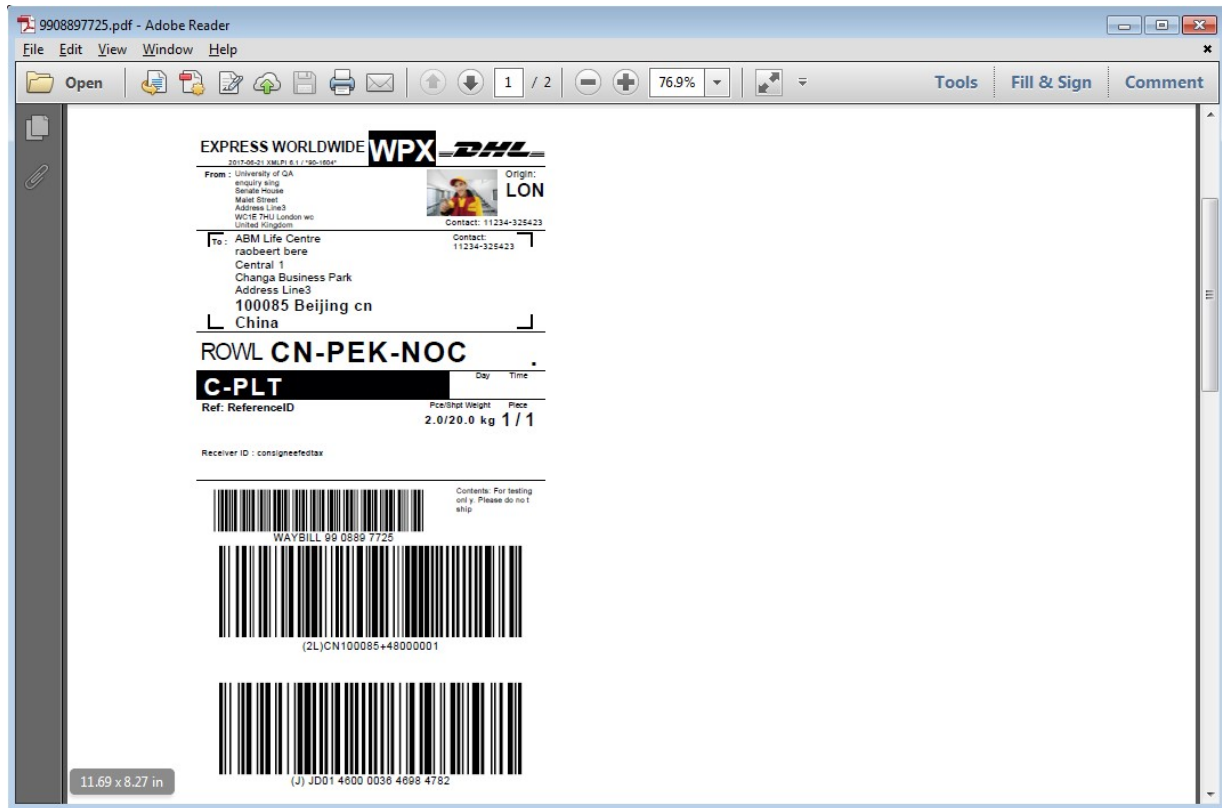
b) Go to File → Print and the below print dialog box will be displayed.



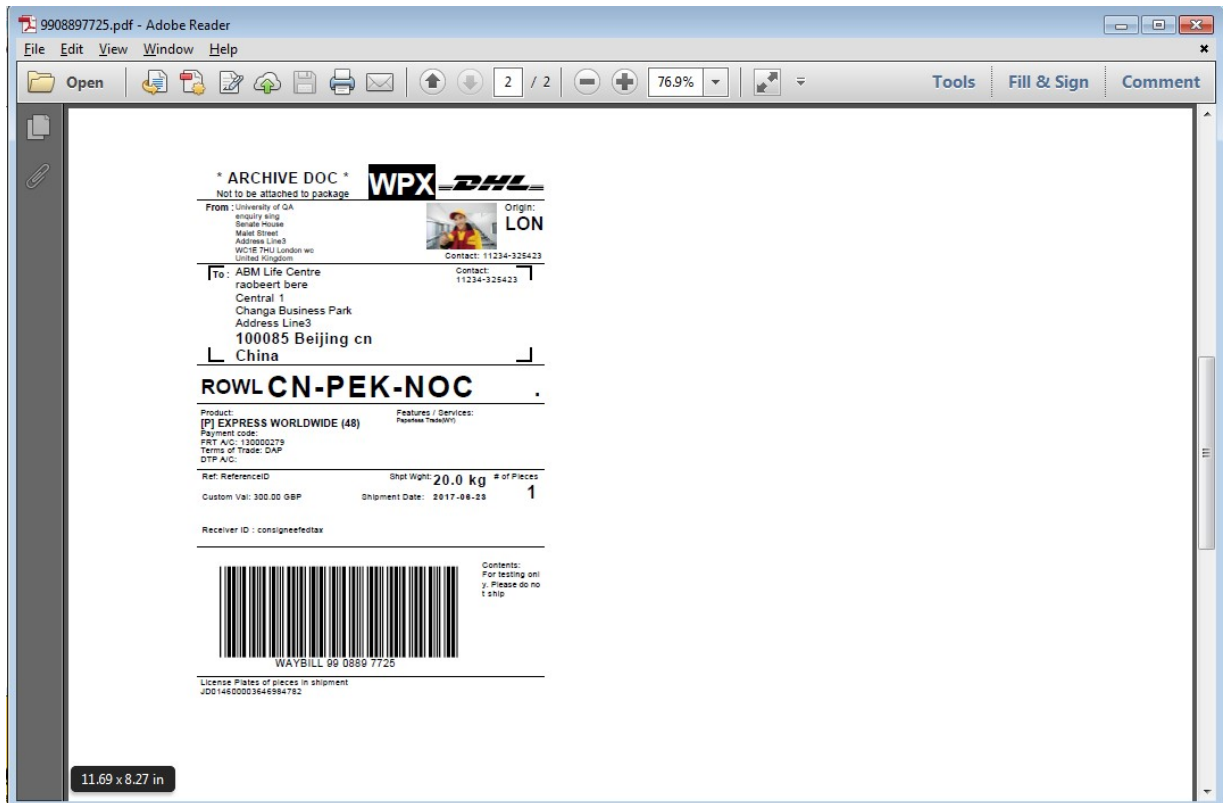
- c) Select the appropriate printer and ensure the 'Page Sizing & Handling' option is 'Actual Size' option, and click 'OK' to print.



### 3.2.1.3 Sample Transport label and Archive document in GLS label rendering 8X4\_A4\_PDF



Transport label



Archive document



## Commercial Invoice

Waybill Number: 6529318154 Date: 2021-03-28 Invoice Number: INV-00210291



**SHIP FROM:**  
UAT v10.0.002 MyDHLAPI  
Wu Fei Chong Er  
Unit 603, 05-07,  
Bio-Informatics Centre  
Testing Street  
HAIKOU, 570000  
P  
CHINA, PEOPLES REPUBLIC  
15356456364

Trader Type: Business  
VAT No: VAT23249923  
EORI:  
TAX ID:

**IMPORTER:**  
TEST Importer Company BFS  
Ms Ellie White  
Unit 11a Boucher Shopping Park  
Boucher Crescent  
Kingsford Drive  
WICKLOW, 0000

IRELAND, REPUBLIC OF  
11234325423  
Trader Type: Business  
VAT No: IP-VAT-001  
EORI: IP-EOR-001

**SHIP TO:**  
SUSAN BROWN  
SUSAN BROWN  
100 HWY 16 QUEEN CHARLOTTE BC  
AddressLine2 Test2  
AddressLine3 Test3  
DUBLIN, 0000

IRELAND, REPUBLIC OF  
2506371267  
Constest9043651@test.com  
Trader Type: Business  
VAT No: 97795889679  
EORI: 977951111

**SOLD TO:**  
Billing Invoice Company Name  
Billing Invoice Contact Name  
Billing Invoice Address Line 1  
Billing Invoice Address Line 2  
Billing Invoice Address Line 3  
DUBLIN, 0000

IRELAND, REPUBLIC OF  
0192883872123455ext0183  
Trader Type: Business  
VAT No: 34750493785  
EORI: 1093681

**EXPORTER:**  
TEST Exporter Company Name PKG  
Wu Yu Chong Er  
Exp Ad Ln1  
Exp Ad Ln2

CHANGSHA, 410018

CHINA, PEOPLES REPUBLIC  
375843584095  
Trader Type: Business  
VAT No: 124562233  
EORI:  
Exporter ID: Exporter Code:

Shipment Reference: ShipLevelTest2  
Receiver Reference: 01291344  
Remarks: Invoice Remarks

UCN: 76498376498

Item	Descriptions	Commodity Code	GST Paid	Net/Gross Weight	COO	Reference Type & ID	Quantity	Unit Value	Sub-Total Value
1	Fall collection: vegan leather pouchette small	IB:4202.91.8090 OB:4202.91.8090	N	0.300 kg 0.300 kg	CN	PAN=10597122 AFE=0323434422	1 PCS	45.000 EUR	45.000 EUR



## Commercial Invoice



Item	Descriptions	Commodity Code	GST Paid	Net/Gross Weight	COO	Reference Type & ID	Quantity	Unit Value	Sub-Total Value
2	Fall collection: white pochette in canvas	IB:4202.91. 8090 OB:4202.91. 8090	N	0.400 kg 0.400 kg	CN	PON-PON-6755	1 PCS	50.000 EUR	50.000 EUR
3	Fall collection: magenta pochette in canvas	IB:4202.91. 8090 OB:4202.91. 8090	N	0.300 kg 0.300 kg	CN	PON-PON-6755	1 PCS	60.000 EUR	60.000 EUR
4	Fall collection: magenta pochette in canvas	IB:4202.91. 8090 OB:4202.91. 8090	N	0.500 kg 0.500 kg	CN	PON-PON-6755	1 PCS	40.000 EUR	40.000 EUR

Total Goods Value: 195.000 EUR  
 Freight Charges: 12.500 EUR  
 Handlingcare: 7.250 EUR  
 Admin charge: 5.000 EUR  
 Total Invoice Amount: 219.750 EUR  
 Currency code: EUR  
 Terms of Payment: 60 days

Terms of Trade: DAP  
 Terms of Trade: GAILDORF PORT  
 Reason for Export: sales  
 Type of Export: PERMANENT  
 Total Net Weight: 1.500 kg  
 Total Gross Weight: 1.500 kg  
 Total line items: 4  
 Number of pallets:  
 Total units: 4

Package Marks / Other Info:  
 PackageMarksInvoice RemarksOtherRemarksOtherRemark

Payer of GST/VAT: yes

I/We hereby certify that the information contained in the invoice is true and correct and that the contents of this shipment are as stated above.

Name: Richard Chung  
 Position: Sales representative  
 Date of signature: 2021-03-28

Signature: *Signature*

Company Stamp

Page 2 of 2

Customs Invoice COMMERCIAL\_INVOICE\_P/L\_10 template document