# USPS Pricing Engine SDK

January 05, 2017

## Summary

This is the Domestic and International Pricing Engine SDK (version 11.6.0.0) for the January 21, 2018 Release. The following is a list of enhancements included in this release.

## BNS 613 - Omnibus Price Change - Regulatory Rate Change (Competitive and Market Dominate)

Prices have been updated in existing price cells for all classes of mail for both Market Dominant and Competitive including extra services and fees.

### Changes to the Database Structure

For the USPS_DOM_2017_09 and USPS_DOM_2018_01 database; a SKU column was added to the following tables

- dmes_am_delivery
- dmes_adult_signature
- dmes_certified_mail
- dmes_cod_registered
- dmes_delivery_confirmation
- dmes_pickup_on_demand
- dmes_picture_permit_imprint
- dmes_return_receipt
- dmes_signature_confirmation
- dmes_special_handling
- dmes_sunday_holiday_delivery
- MailingFees

For the USPS_INTL_2017_09 and USPS_INTL_2018_01 databases; a SKU column was added to the MailingFees table.

## BNS 612 - Changes/Corrections to Mailing Statements – Return Receipt for FCPS & PSG

Various business customers requested that hard copy Return Receipt be returned to FCPS with Adult Signature Required and Adult Signature Restricted Delivery, and Parcel Select Ground with Adult Signature Required and Adult Signature Restricted Delivery. With this change the postage statements need to be updated to include the hard copy Return Receipt and add "(Electronic) to Signature

Confirmation and Signature Confirmation Restricted Delivery. Postage statements that are affected: 3600-FCM, 3605-R and 3600-PM.

NOTE: THE CHANGE TO RETURN RECEIPT BEHAVIOR ONLY AFFECTS THE DOMESTIC BUSINESS CALCULATOR.

### Changes to the Database Structure
To allow each client to have different behavior the Primary Key on the ExtraServiceToExtraServiceBusiness Domestic and International _2018_01 database has been altered to include the Customer Type.

To assure a common structure between the Domestic and International database the structure of the International database's table ExtraServiceToExtraServiceBusiness has been modified to include the CustomerType column. This change has been applied to both the USPS_INTL_2017_09 and USPS_INTL_2018_01 databases.

## BNS 619 – Update Zone chart to reflect PM APO/DPO/FPO processed in Chicago
Update Zone Chart to reflect APO/DPO/FPO Processed in Chicago

This only affects Priority Mail. Operations have found it is more feasible to process the APO/FPO/DPO Priority Mail (only) in Chicago, for all theaters, then transport to the outgoing facilities.

### How will it work?

> We have an "Exception File" in the existing Zone Chart product that is used for Zone 9, Freely Associated States of Micronesia. The file will use what is in the file today or it could have an additional code for the look-up.

### Changes to the API
A zone calculation has always applied to all mail services. BNS 619 makes a zone calculation mail service specific. For GetServicesWithPricing or CalculateServicePrice, the application must use the Geography::Zone (legacy calculation) or the AdditionalZones::AdditionalZone::Zone collection (in the case of a mail service exception). For GetZone or GetZones, the application must use the Zone or Zone5DigitZones::Zone5DigitZone collection respectively.

### GetServicesWithPricing and CalculateServicePrice
The response structure for the GetServicesWithPricing and CalculateServicePrice methods has been altered to return multiple Zones when needed.
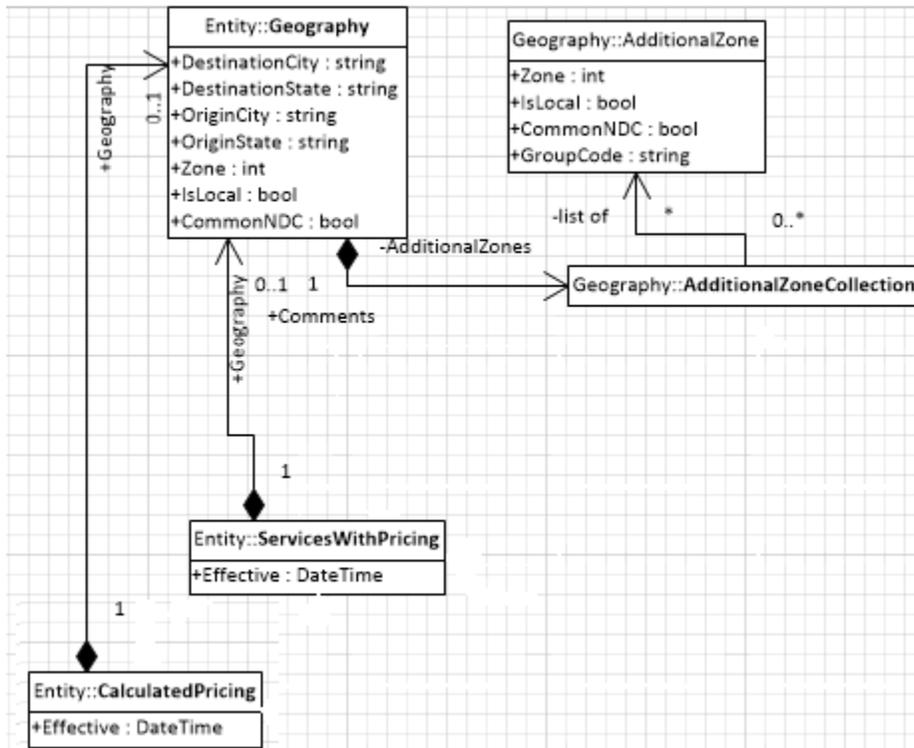
A collection named AdditionalZones of AdditionalZone objects was added to the Geography class. Each AdditionalZone object contains the following fields:

- Zone – the zone
- IsLocal – if the zone is local
- CommonNDC – if the ZIP Codes for the zone have a common NDC

- GroupCode – the Mail Service Group Code that this Zone is used by. The Group Code can contain wildcards values "%".

The Zone member of the Geography object is used for all Mail Services except when the Mail Service Group Code matches one of the Additional Zone objects. In that case the Zone for the matching object should be used for that Mail Service.

MODEL DIAGRAM



### GetZone and GetZones

The response structure for the GetZone and GetZones methods has been altered to include a GroupCode member as part of the Zone.Zone5Digit class. The Zone.Zone5Digit class is used to return 5 digit ZIP code exceptions. With the addition of the Group Code the exception can now also include Mail Service exceptions for the 3 digit ZIP code.

#### Zone.Zone5Digit Class

Namespace
ManTech.Usps.RateEngine.Domestic.Entity

Base Class
None

Properties
OrigZIPFirst : ZipCode
OrigZIPLast : ZipCode

DestZIPFirst : ZipCode
DestZIPLast : ZipCode
ZoneCount : int
GroupCode: string

### Changes to the Database Structure

For the USPS_DOM_2017_09 and USPS_DOM_2018_01 database; a Group Code column has been added to the dm_zone_chart_5_digit table. This will contain the mail service Group Code that applies to the exception.

Note: Test data scripts are available by request.

## BNS 630 - Limit the content for First-Class Mail International (FCMI) to documents

Future process: Modify all systems and IMM to indicate that no "goods" can be mailed as FCMI but retain PS 2976 customs form as an option for documents.  This will deter customers from inducting goods/merchandise into the FCMI stream.  Customs form will continue to be provided for FCMI.

Current the max value for FCMI letters and large letters (flats) is $400 with this BNS the max value would be zero.

### Changes to the API

#### *GetServicesWithPricing and CalculateServicePrice*

The following rules are now applied to the GetServicesWithPricing and CalculateServicePrice methods:

- FCMI Letters and Large Envelopes will only be returned if the value of the item being mailed is: $0 (instead of a range from $0 to $400)
- The ValueMax attributes for First Class Mail International Letter (or Large Envelope) is set to $0.00.

#### *Customs Forms*

For the Customs Forms API the following changes have been made to the International request:

- The message "2. The envelope contains goods (i.e., Dutiable Contents)" has been changed to "2. The envelope's contents are potentially dutiable (i.e. Merchandise, Goods)"
- For First-Class Mail Letter
  - The response has been changed to only return "No Customs Needs".
  - The weight is now required and is used to determine the outcome. If more than 16 oz. the 2976 Customs Form is required else No customs Form is needed.
  - If Is Document is false or the Content Value is not 0.00, the Prohibited Exception is thrown
- For First-Class Mail Large Envelope
  - The response has been changed for weights under 16 ounces that "No Customs Needs"

- o Is Greater Than 3/4 Thick is now required and is used to determine the outcome. If true the 2976 Customs Form is required else No customs Form is needed.
  - o Is Uniformly Thick is now required and is used to determine the outcome. If true the 2976 Customs Form is required else No customs Form is needed.
  - o The weight is now required and is used to determine the outcome. If more than 16 oz. the 2976 Customs Form is required else No customs Form is needed.
  - o If Is Document is false or the Content Value is not 0.00, the Prohibited Exception is thrown
- The following message is also now returned for First-Class Mail Letter and Large Envelope: "Merchandise is not allowed in First-Class Mail International. The item must be mailed using Global Express Guaranteed service, Priority Mail Express International service, Priority Mail International service, or First-Class Package International Service."

## ICL Updates
The ICL has been updated with most recent country regulations. FCMI references have been removed where required.

## CR 9835 - USPS Retail Ground for CNS
USPS Retail Ground services/prices available for Click 'N' Ship when the Origin ZIP Code is APO/FPO/DPO.

## Changes to Client Maps

### Click-N-Ship
USPS Retail Ground will be returned when the sender address is an APO/FPO/DPO.

### Price Calculator and Mobile
USPS Retail Ground online will be shown as available when the sender address is an APO/FPO/DPO.

Note: All current USPS Retail Ground restrictions are maintained.

## Changes to the Database
For the USPS_DOM_2017_09 and USPS_2018_01 new rules were added to the FilterCustomerTypeMap table to correct the following issues.  These changes should have no impact on the results returned since the client maps in question don't current use the content types outlined. This update is mainly to true the data.

For client map 011B6 and 011P6 - the previous results for the following are not correct

- Live Animals - results will be different
- Day Old Poultry - results will be different
- Fragile - results will be different

For client 014C4 and 023C4 - the previous results are correct but new rules have been added

- Pharmaceuticals - the results should not change

- Medical Supplies - the results should not change

For the USPS_2018_01 database new rules were added to the FilterCustomerTypeMap table to implement the required behavior for this change.

## Updated Holidays

The Holiday data has been updated to reflect the 2018 Holidays.

| Date | Holiday |
|------|---------|
| Monday, January 1 | New Year's Day |
| Monday, January 15 | Birthday of Martin Luther King, Jr. |
| Monday, February 19 | Washington's Birthday |
| Monday, May 28 | Memorial Day |
| Wednesday, July 4 | Independence Day |
| Monday, September 3 | Labor Day |
| Monday, October 8 | Columbus Day |
| Monday, November 12 | Veterans Day |
| Thursday, November 22 | Thanksgiving Day |
| Wednesday, December 25 | Christmas Day |

## CR 9922 – Allow the Shipping Date Span to be Configurable

The Shipping Date Span for both the Domestic and International Pricing Engines can now be configured by changing a variable in the web and app config file. The Shipping Date Span previous was hard coded to plus or minus 30 days. The Pricing Engines uses Shipping Date Span value to validate if the Shipping Date submitted is within the approved range. If the submitted Shipping Date is outside the approved range an exception is returned notifying the caller that the Shipping Date must be within the approved range. With this change the approved Shipping Date range can now be easily updated in the configuration file for the application.

To take advantage of this change you will need to make the following updates to the Web.Config and App.Config files. These changes should also be made to the Test Tool App.Config files. This change is not required, if not made the Pricing Engine will continue using the default value of plus or minus 30 days.

### Configuration File change:

Add <add key="ShippingDateValidator.NumberOfDays" value="30"/> to the <appSettings> section of the configuration file (Web.Config or App.Config). Set the value to the desired number of days (plus or minus) for the range.

### Example:

```
<appSettings>
        …
        <add key="ShippingDateValidator.NumberOfDays" value="37"/>
</appSettings>
```

## Updated version number and sign all DLLs
All the libraries have been update to version 11.6.0.0 and re-signed.

## Updated databases
New databases have been created for this release: USPS_DOM_2018_01 and USPS_INTL_2018_01 for domestic and international respectively. With Advance Pricing the Pricing Engine will continue to use the USPS_DOM_2017_09 and USPS_INTL_2017_09 databases for shipping date prior to the price change date (See the USPS Pricing Engine SDK 11_5_1_0 release notes or the Pricing Engine DotNET Developers Guide for details on advance pricing).

## Impact on Existing Applications
You will have to rebuild your applications.

## Instructions
1. Copy the DLLs
2. Restore the databases (SQL Server 2012 backups). The database backups are <u>not</u> included and can be downloaded separately. Note: the SQL script files have been included in the package for those that cannot restore the SQL Server 2012 backups. SQL Scripts should be executed in the order shown below.

Note: The batch can be executed with a parameter that specifies the database name. The default database names are "USPS_DOM_2018_01" and "USPS_INTL_2018_01"

i.e.: > "Execute Domestic Price Change 2018 Updates.bat" "[your database name]"

## Contents

| Description | File |
|---|---|
| **Folder** | Database |
| **Folder** | Domestic |
| **SQL Script** | BNS 613 - Domectic - 2017 Table Updates.sql |
| **SQL Script** | BNS 619 - 2017 Table Updates.sql |
| **SQL Script** | CR 9835 - 2017 Table Updates.sql |
| **SQL Script** | BNS 613 - Domectic - 2018 Table Updates.sql |
| **SQL Script** | BNS 613 - Docmetic - Mailing Fees Add SKU.sql |
| **SQL Script** | BNS 613 - Domectic - Rate Updates.sql |
| **SQL Script** | BNS 613 - Domectic - Rate Updates - Mailing Fees.sql |
| **SQL Script** | BNS 613 - Domectic - Rate Updates - Discount and Surcharges |
| **SQL Script** | BNS 619 - 2018 Table Updates.sql |
| **SQL Script** | CR 9629.sql |
| **SQL Script** | BNS 283 - Domectic - Return Receipt.sql |

| | | |
|---|---|---|
| **SQL Script** | | CR 9835 - 2018 Table Updates.sql |
| **SQL Script** | | CreateClient_Mobile_023C4.sql |
| **SQL Script** | | CreateClient_PriceCalc_014C4.sql |
| **Batch File** | | Execute Domestic Price Change 2017 Updates.bat |
| **Batch File** | | Execute Domestic Price Change 2018 Updates.bat |
| **Folder** | | International |
| **SQL Script** | | BNS 283 - International - 2017 Table Update.sql |
| **SQL Script** | | BNS 613 - International - 2017 Table Updates.sql |
| | | BNS 283 - International - 2018 Table Update.sql |
| **SQL Script** | | BNS 613 - International - 2018 Table Updates.sql |
| **SQL Script** | | BNS 613 - International - Mailing Fees Add SKU.sql |
| **SQL Script** | | BNS 613 - International - Rate Updates.sql |
| **SQL Script** | | BNS 613 - International - Rate Updates - Mailing Fees.sql |
| **SQL Script** | | BNS 630.sql |
| **SQL Script** | | BNS 630 - International - Task 9830 - ICL Changes.sql |
| **SQL Script** | | BNS 630 - International - Task 9830 - Maximum Value for Content message.sql |
| **SQL Script** | | BUG 9941 - BNS 630 - Add error message for FCPIS.sql |
| **SQL Script** | | BUG 9946 - International - Task 9947 - Update empty Restrictions columns to read None.sql |
| **Batch File** | | Execute International Price Change 2017 Updates.bat |
| **Batch File** | | Execute International Price Change 2018 Updates.bat |
| **Folder** | | Libraries |
| **Rate Engine Framework** | | RateEngine_Framework.dll |
| **Business Framework** | | RateEngine_Business.dll |
| **Domestic Business Rate Engine** | | RateEngine_DomBusiness.dll |
| **International Business Rate Engine** | | RateEngine_IntlBusiness.dll |
| **Service Delivery Extensions** | | ServiceDeliveryExtensions.dll |
| **Customs Forms Engine** | | CustomsFormsEngine.dll |
| **Design Model** | | Pricing Engine.pdf |
| **Release Notes** | | USPS Pricing Engine SDK 11_6_0_0.pdf |

## Reported Defects and Change Request

| | |
|---|---|
| BUG - International Extra Services unavailable | **Corrected** |
| BNS 613 Omnibus Price Change - Intl Postal Money Orders prices incorrect | **Corrected** |
| BNS 630 - The Value of content return should be $0 | **Corrected** |
| BUG - BNS 630 – Error Message Correction for FCMI | **Corrected** |
| BUG 10020 - Issue where the ShippingDate is set to DateTime.MinValue | **Corrected** |
| BUG 10038 - BNS 619 - Object Reference Error on Postcards | **Corrected** |

## BUG - International Extra Services unavailable

### Steps to Reproduce
The Insurance extra service is not appearing for GXG, PMEI, and PMI on the retail calculator. The header is repeated.  The exception table doesn't line up on the rows when it displayed on a small screen

### Acceptance Criteria
Insurance Extra services should appear for GXG, PMEI, PMI on retail calculator.

## BUG - BNS 613 Omnibus Price Change - Intl Postal Money Orders prices incorrect

### Steps to Reproduce
Use the Intl Test Tool
Choose the GetMailingFees tab
On the Fees Keys Drop Down, choose InternationalPostalMoneyOrder
 Observe the MoneyOrder Price and Cost are 6.45 and the InquiryFee price and cost are 8.55.

### Acceptance Criteria
MoneyOrder Price and Cost should read 8.55 and the InquiryFee price and cost should read 6.45.

## BUG - BNS 630 - The Value of content return should be $0

### Steps to Reproduce
Launch the International Test Tool 11.6.0.0
Click on the tab - CalculateServicePrice
Enter the following:
Service ID - 4; Delivery Option - XX
Caller ID - 14; Src ID - 4; Customer Type - 004R4
Shape and Size - Letter
Zip Code - 20120 to Country ID 10013
Weight 1 ounces and additional input - dvi - .01
Click on "Get"
Note the error received is incorrect - Message: The Item Value exceeds the products allowed $400.00 Maximum Value for Content.
It should not allow any product's over $0.00

### Acceptance Criteria
Message should read The Item Value exceeds the products allowed $0.00 Maximum Value for Content.

## BUG - BNS 630 – Error Message Correction for FCMI

### Acceptance Criteria
Message should read The Item Value exceeds the products allowed $400.00 Maximum Value for Content for First Class Mail International

## BUG 10020 – Issue where the ShippingDate is set to DateTime.MinValue

### Issue
The issue is that when calling the Pricing Engine some of the calls are using the wrong pricing and business logic. It was discovered that the only way this could be happening is when the configuration file has the default database set to the previous database and the Shipping Date for the call to the Pricing Engine is set to January 1, 0001 (MinValue). In the SDK when a client creates a request object for the "Get Services with Pricing" or the "Calculate Service Price" interfaces, the Shipping Date defaults to the January 1, 0001 value. The decision to default to January 1, 0001 was made many years ago way before the implementation of Advance Pricing. Prior to Advance Pricing the shipping date was only used for service commitment, if the client had no need of the service commitment the shipping date of January 1, 0001 had on effect on the response. With the addition of Advance Pricing the shipping date is now used to also determine what pricing and business logic to return. This change was made in Feb 2017 with release notes outline that the shipping date is now required for Advance Pricing. The default database was implemented as part of the Advance Pricing update to lower the impact on SDK users. The default allows the SDK users to continue with the shipping date default to the January 1, 0001. But once the configure file on the SDK system has been updated to use Advance Pricing the shipping date need to be set by the client. If the Pricing Engine receives a shipping date outside the range of the price changes defined in the configure file, the default database is used. Since January 1, 0001 is always outside all Pricing Changes the default would be used on these request.

### Solution
Made a change to the Pricing Engine's method that determines which database to use for the request to handle a shipping date of January 1, 0001 as today's date. This change would have no impact on any other part of the Pricing Engine since all that is be done is when the shipping date received is January 1, 0001 the business logic for a shipping date of today's date would be used. In other words January 1, 0001 would mean to that method and that method only a "Shipping Date" of today. This change is to a single library (RateEngine_Framework.dll). This change corrects the behavior for all systems and wouldn't require any downstream systems to make a change.

## BUG 10038 - BNS 619 - Object Reference Error on Postcards

### Steps to Reproduce
1. IDCard = 14, 23, 023C4 (any client id can be used that returns Postcard)

2. Postcard, PostcardLarge
3. Leave the Origin and Destination ZIP codes blank
4. 1 oz.

Message: Object reference not set to an instance of an object.

## Acceptance Criteria
The Postcard and Stamped FCM Letter objects are returned.