

**.NET Software Development Kit (SDK):
Developing Applications Using the USPS
Rate Engine Business Framework**

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1 .NET Software Development Kit Overview

This software development kit (SDK) is intended to provide software and Internet developers with the ability to integrate postage rate information into programs and/or web sites.

1.1 Licenses and Liability

The information and components contained within this SDK may be distributed only to individuals who have signed the USPS User License and may only be used in accordance with the terms of the USPS User License. The USPS assumes no liability for the incorrect implementation of this SDK once it has been incorporated into a client product. The USPS will supply upgrades to the data and/or the objects when needed, but it assumes no part in distribution of these upgrades once the engine has been integrated into client products.

1.2 Purpose

This document is to be used as a supplement to .NET Software Development Kit documentation for the Domestic Business Rate Engines, International Business Rate Engines. These documents are titled as following:

- .NET Software Development Kit (SDK): Developing Applications Using the USPS Domestic Business Rate Engine
- .NET Software Development Kit (SDK): Developing Applications Using the USPS International Business Rate Engine

1.3 Contact Information

For Technical Support, contact:

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2 Application Programming Interface (API)

2.1 BusinessMailProperties Class

2.1.1 Namespace

ManTech.Usps.RateEngine.Business.Entity

2.1.2 Base Class

ManTech.Usps.RateEngine.Entity.MailProperties

2.1.3 Constructors

public BusinessMailProperties()

2.1.4 Properties

Name	Type	Description
CalculatorElements	CalculatorElementsCollection	Gets a reference to a collection of calculator elements.
CalculatorFeeElements	CalculatorElementsCollection	Gets a reference to a collection of calculator fee elements.
CalculatorID	CalculatorID	Gets or sets the calculator ID.
CubicFeet	decimal	Gets and sets the cubic feet.
DimensionalPounds	decimal	Gets and sets the dimensional weight in pounds.
DiscountsAndSurcharges	DiscountsAndSurchargeCollection	Gets a reference to a collection of discounts and surcharges.
ExtraServiceElements	ExtraServiceElementCollection	Gets a reference to a collection of extra service elements.

2.2 Calculator Class

2.2.1 Namespace

ManTech.Usps.RateEngine.Business.Entity

2.2.2 Base Class

None

2.2.3 Properties

Name	Type	Description
CalculatorElementColumns	CalculatorElementColumn Collection	Gets or sets a reference to a collection of element columns objects.
CalculatorElements	CalculatorElement Collection	Gets or sets a reference to a collection of element objects.
CalculatorFeeElementColumns	CalculatorElementColumn Collection	Gets or sets a reference to a collection of fee element columns objects.
CalculatorFeeElements	CalculatorElement Collection	Gets or sets a reference to a collection of fee element objects.
CalculatorID	CalculatorID	Gets or sets the ID for this calculator.
DiscountsAndSurcharges	DiscountsAndSurcharge Collection	Gets or sets a reference to a collection of discounts and surcharges objects.
DisplayFormat	string	Gets or sets a string that represents the format that is used when displaying prices.
ExtraServiceElements	ExtraServiceElementCollection	Gets or sets a reference to a

		collection of extra service elements objects.
FootNotes	TextWithLinksCollection	Gets or sets a collection of footnotes.
IsCubicPricing	bool	Gets or sets if this calculator uses cubic pricing.
IsDimensionalWeightRequired	bool	Gets or sets if this calculator requires dimensional weights.
IsZoned	bool	Gets or sets if this calculator requires the Zone.
MailServiceID	MailServiceID	Gets or sets the ID of the associated mail service.
PriceType	string	Gets or sets the price type of the calculator. Values: R = Retail CB = Comm. Base CP = Comm. Plus NA = Not Applicable
Title	TextWithLinks	Gets or sets the title of this calculator.
WeightInfo	WeightInformation	Gets or sets a reference to the weight information associated with this calculator.

2.3 CalculatorCollection Class

2.3.1 Namespace

ManTech.Usps.RateEngine.Business.Entity

2.3.2 Base Class

List<Calculator>

2.4 CalculatorElement Class

2.4.1 Namespace

ManTech.Usps.RateEngine.Business.Entity

2.4.2 Base Class

None

2.4.3 Constructors

```
public CalculatorElement()
```

```
public CalculatorElement(CalculatorElement calculatorElement)
```

2.4.4 Properties

Name	Type	Description
DataTablePieceColumn	string	Gets or sets the Data Table used to get the piece price.
DataTablePoundColumn	string	Gets or sets Data Table used to get the pound price.
DestinationEntries	DestinationEntryCollection	Gets or sets a reference to a collection of destination entries.
ElementType	ElementTypes	Gets or sets the element type.
Id	CalculatorElementID	Gets or sets the ID for this calculator element.
IsDiscountElement	bool	Gets or sets if the element is a discount element. Discount elements are rows that the input fields are discounts to the total postage.
IsPricingElement	bool	Gets if the element is one of the price types.
IsTitleElement	bool	Gets or sets if this element is a title element. Title elements are rows that contain only a title and have no input fields.
NumberOf1	ulong	Gets or sets the number of pieces field one.

NumberOf2	ulong	Gets or sets the number of pieces field two.
PiecePrice	decimal	Gets or sets the piece price.
Postage	decimal	Gets or sets the postage.
PoundPrice	decimal	Gets or sets the pound price field one.
PoundPrice2	decimal	Gets or sets the pound price field two.
SelectedDestinationEntry	DestinationEntry	Gets the selected destination entry.
SelectedDestinationEntry Value	DestinationEntry.EntryValue	Gets or sets the value of the selected destination Entry.
Title	string	Gets or sets the title.
Weight1	Decimal	Gets or sets the weight piece one.
Weight2	Decimal	Gets or sets the weight piece two.

2.4.5 CalculatorElement.ElementTypes Enumeration

Name	Value	Description
Unknown	1	The element type is unknown
ZonePriceElement	2	The element is a zone price element
NonZonePriceElement	3	The element is a non-zone price element
FlatRatePriceElement	4	The element is a flat rate price element
DiscountElement	5	The element is a discount element
TitleElement	6	The element is a title element
FeeElement	7	The element is a fee element

2.4.6 SelectDestinationEntryValue Method

Description

This method is used to select a destination entry by passing the string value of the enumerator.

Syntax

```
public void SelectDestinationEntryValue(string entryValueString)
```

Parameters

entryValueString

Type: string

Namespace: none

Return Value

None

2.5 CalculatorElementCollection Class

2.5.1 Namespace

ManTech.Usps.RateEngine.Business.Entity

2.5.2 Base Class

List<CalculatorElement>

2.5.3 AddDestinationEntry Method

Description

This method is used to add a destination entry by passing the destination entry and the calculator element ID.

Syntax

```
public void AddDestinationEntry(  
    DestinationEntry destinationEntry, CalculatorElementID calculatorElementID  
)
```

Parameters

destinationEntry

Type: DestinationEntry

Namespace: Mantech.Usps.RateEngine.Business.Entity

calculatorElementID

Type: CalculatorElementID

Namespace: Mantech.Usps.RateEngine.Business.Entity

Return Value

None

2.5.4 FindByCalculatorElementID Method

Description

This method is used to find a Calculator Element in a collection by passing the calculator element ID.

Syntax

```
public void FindByCalculatorElementID (CalculatorElementID calculatorElementID)
```

Parameters

calculatorElementID

Type: CalculatorElementID

Namespace: Mantech.Usps.RateEngine.Business.Entity

Return Value

CalculatorElement

Namespace: Mantech.Usps.RateEngine.Business.Entity

2.6 CalculatorElementColumn Class

2.6.1 Namespace

ManTech.Usps.RateEngine.Domestic.Business.Entity

2.6.2 Base Class

None

2.6.3 Properties

Name	Type	Description
DisplayFormat	string	Gets or sets the format to display data in this column.
FieldName	string	Gets or sets the name of the field in the Calculator object that is associated with this column.
HeaderText	string	Gets or sets the header text for this column.
HelpLink	TextWithLinks	Gets or sets a reference to the help link information for this column.
TypeOf	ColumnType	Gets or sets the type of this column.

2.6.4 CalculatorElementColumn.ColumnType Enumeration

Name	Value	Description
Label	1	Each row in this column has a label.
TextBox	2	Each row in this column has an input text box.
DestinationEntry	3	Each row in this column has a drop down with destination entry to select from.
Price	4	Each row in this column has a label that is formatted as a price.
FeeLabel	5	Each row in this column has a label for the fee.
FeeTextBox	6	Each row in this column has an input text box for the fee.
FeePrice	7	Each row in this column has a label that is formatted as a fee price.

2.7 CalculatorElementColumnCollection Class

2.7.1 Namespace

ManTech.Usps.RateEngine.Business.Entity

2.7.2 Base Class

List<CalculatorElementColumn>

2.8 CalculatorElementID Structure

2.8.1 Namespace

ManTech.Usps.RateEngine.Business.Entity

2.8.2 Base Class

None

2.8.3 Constructors

```
public CalculatorElementID(short id)
```

```
public CalculatorElementID(string idString)
```

2.8.4 Properties

Name	Type	Description
Empty (static)	CalculatorElementID	Gets an empty ID.
Value	short	Gets or sets the ID as a short.

2.8.5 ToShort Method

Description

This method is used to get the id represented as a short.

Syntax

```
public short ToShort()
```

Parameters

None

Return Value

Type: short

Namespace: none

The ID as a short.

2.9 CalculatorID Structure

2.9.1 Namespace

ManTech.Usps.RateEngine.Business.Entity

2.9.2 Base Class

None

2.9.3 Constructors

```
public CalculatorID(short id)
```

```
public CalculatorID(string idString)
```

2.9.4 Properties

Name	Type	Description
Empty (static)	CalculatorID	Gets an empty ID.
Value	short	Gets or sets the ID as a short.

2.9.5 ToShort Method

Description

This method is used to get the id represented as a short.

Syntax

```
public short ToShort()
```

Parameters

None

Return Value

Type: short

Namespace: none

The ID as a short.

2.10 CalculatorSet Class

2.10.1 Namespace

ManTech.Usps.RateEngine.Business.Entity

2.10.2 Base Class

None

2.10.3 Properties

Name	Type	Description
[index]	Calculator	Gets or sets a Calculator object at the specified index.
Items	CalculatorCollection	Gets or sets a reference to a collection of Calculator objects.
RelatedLinks	TextWithLinkCollection	Gets or sets a reference to a collection of related links.
Title	string	Gets or sets the title.

2.11 DestinationEntry Class

2.11.1 Namespace

ManTech.Usps.RateEngine.Business.Entity

2.11.2 Base Class

None

2.11.3 Constructors

public DestinationEntry()

public DestinationEntry(DestinationEntry destinationEntry)

2.11.4 Properties

Name	Type	Description
Id	EntryValue	Gets or sets the Id of the destination entry.
IsSelected	bool	Gets or sets if this destination entry is selected.
Label	string	Gets the label.

2.11.5 DestinationEntry.EntryValue Enumeration

Name	Value	Description
Unknown	0	The Destination Entry is not known. This value serves as the default and represents that the values has not been set.
None	1	No Destination Entry.
DNDC	2	The Destination Entry is DBMC. The value DNDC is the older Destination Entry values and was changed to DBMC.
DSFC	3	The Destination Entry is DSFC.
DDU	4	The Destination Entry is DDU.

2.12 DestinationEntryCollection Class

2.12.1 Namespace

ManTech.Usps.RateEngine.Business.Entity

2.12.2 Base Class

List<DestinationEntry>

2.12.3 Constructors

public DestinationEntryCollection()

public DestinationEntryCollection(int capacity)

public DestinationEntryCollection(DestinationEntryCollection destinationEntries)

2.13 DiscountsAndSurcharge Class

2.13.1 Namespace

ManTech.Usps.RateEngine.Business.Entity

2.13.2 Base Class

None

2.13.3 Properties

Name	Type	Description
Children	DiscountsAndSurchargeCollection	Gets or sets a reference to a collection of discount or surcharge associated as children to this discount or surcharge.
Cost	decimal	Gets or sets the cost of this discount or surcharge.
GroupName	string	Gets or sets the name of the group this discount or surcharge belongs to.
Id	short	Gets or sets the ID.
RefID	DiscountsAndSurchargeRefID	Gets or sets the reference ID. The reference ID is used to associate the discount or surcharge to description text and link URLs.
TextWithLinks	TextWithLinks	Gets or sets a reference to a TextWithLinks object that contains description text and link URLs.
TypeOf	DiscountsAndSurchargeType	Gets or sets the type of control used to represent the discount or surcharge. See table 2.15.4.

2.13.4 DiscountsAndSurcharge.DiscountsAndSurchargeType Enumeration

Name	Value	Description
CheckBox	1	The discount or surcharge is Boolean and can be selected or unselected.
RadioButton	2	The discount or surcharge is Boolean and when selected other discount or surcharges in the same group cannot be. The graphical control appears radio button.
RadioCheckBox	3	The discount or surcharge is Boolean and when selected other discount or surcharges in the same group cannot be. The

		graphical control appears check box.
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2.14 DiscountsAndSurchargeCollection Class

2.14.1 Namespace

ManTech.Usps.RateEngine.Business.Entity

2.14.2 Base Class

List<DiscountsAndSurcharge>

2.14.3 AddsAsChildTo Method

Description

This method is used to add to the collection as a child of a parent with the parent ID.

Syntax

```
public void AddAsChildTo(  
    DiscountsAndSurcharge discountsAndSurcharge, short parentID  
)
```

Parameters

discountsAndSurcharge

Type: DiscountsAndSurcharge

Namespace: ManTech.Usps.RateEngine.Business.Entity

parentID

Type: short

Namespace: None

Return Value

None

2.14.4 ContainsByRefID Method

Description

This method is used to see if the collection contains a discount and surcharge with the specified ref id.

Syntax

```
public bool ContainsByRefID(  
    DiscountsAndSurchargeRefID refID  
)
```

Parameters

refID

Type: DiscountsAndSurchargeRefID

Namespace: ManTech.Usps.RateEngine.Business.Entity

Return Value

Type: bool

Namespace: none

2.14.5 FindByRefID Method**Description**

This method is used to find the discounts and surcharge in the collection with the specified ref id.

Syntax

```
public DiscountsAndSurcharge FindByRefID(  
    DiscountsAndSurchargeRefID refID  
)
```

Parameters

refID

Type: DiscountsAndSurchargeRefID

Namespace: ManTech.Usps.RateEngine.Business.Entity

Return Value

Type: DiscountsAndSurcharge

Namespace: Mantech.Usps.RateEngine.Business.Entity

2.15 DiscountsAndSurchargeRefID Structure

2.15.1 Namespace

ManTech.Usps.RateEngine.Business.Entity

2.15.2 Base Class

None

2.15.3 Constructors

```
public DiscountsAndSurchargeRefID(short id)
```

```
public DiscountsAndSurchargeRefID (string idString)
```

2.15.4 Properties

Name	Type	Description
Empty (static)	CalculatorID	Gets an empty ID.
Value	short	Gets or sets the ID as a short.

2.15.5 ToShort Method

Description

This method is used to get the id represented as a short.

Syntax

```
public short ToShort()
```

Parameters

None

Return Value

Type: short

Namespace: none

The ID as a short.

2.16 ErrorMessageDictionary Class

2.16.1 Namespace

ManTech.Usps.RateEngine.Business.Entity

2.16.2 Base Class

Dictionary<int, string>

2.16.3 message Static Property

Description

This method is used to access the error messages.

Syntax

```
public static ErrorMessageDictionary message
```

2.17 ExtraServiceElement Class

2.17.1 Namespace

ManTech.Usps.RateEngine.Business.Entity

2.17.2 Base Class

ManTech.Usps.RateEngine.Business.Entity.ExtraService

2.17.3 Constructors

```
public ExtraServiceElement(ExtraServiceElement extraServiceElement)
```

```
public ExtraServiceElement(ExtraServiceElement extraServiceElement, bool  
copyAdditionalFields)
```

2.17.4 Properties

Name	Type	Description
NumberOfPieces	ulong	Gets or sets the number of pieces.
FootNotes	TextWithLinksCollection	Gets or sets the footnotes.

2.18 ExtraServiceElementCollection Class

2.18.1 Namespace

ManTech.Usps.RateEngine.Business.Entity

2.18.2 Base Class

List<ExtraServiceElement>

2.18.3 FindByExtraServiceID Method

Description

This method is used to find the extra service element by the extra service ID.

Syntax

```
public ExtraServiceElement FindByExtraServiceID(  
    ExtraServiceID extraServiceID  
)
```

Parameters

extraServiceID

Type: ExtraServiceID

Namespace: ManTech.Usps.RateEngine.Business.Entity

Return Value

Type: ExtraServiceElement

Namespace: ManTech.Usps.RateEngine.Business.Entity

2.19 WeightInformation Class

2.19.1 Namespace

ManTech.Usps.RateEngine.Business.Entity

2.19.2 Base Class

None

2.19.3 Properties

Name	Type	Description
IsSinglePieceUnitsChangable	bool	Gets or sets if the units can be changed by the user.
SinglePieceUnits	Weight.WeightUnit	Gets or sets an enumerator that is used as the default units (ounces or pounds) for this weight object.
WeightLimit	Weight	Gets or sets a reference to a Weight object that represents the maximum weight limit.
WeightLimitOperator	Weight.WeightOperator	Gets or sets an enumerator that is used to determine how the maximum weight is applied.
WeightLimitText	TextWithLinks	Gets or sets a reference to a TextWithLinks object that contains the description text and link URLs that represents the maximum weight limit.
WeightMin	Weight	Gets or sets a reference to a Weight object that represents the minimum weight limit.
WeightMinOperator	Weight.WeightOperator	Gets or sets an enumerator that is used to determine how the minimum weight is applied.

3 Document Control

3.1 Amendment List

8/20/2014	Multiple Sections	Updated contract information and other sections to reflex the Sept 2014 Price Change	James Fleeson
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