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Pub/Sub API Accounting Integration

Overview

The Pub/Sub Accounting Integration allows any system capable of accessing the Salesforce Pub/Sub API to seamlessly integrate accounting with the TMS. The TMS sends outbound accounting events (Customer, Vendor, Load, Customer Invoice, and Vendor Invoice) to the Pub/Sub API event bus for processing by the accounting system. The TMS is also able to process inbound accounting events (Customer Payment and Vendor Payment) sent to the Event Bus by the accounting system.

The main Salesforce components used by this integration include a Connected App for authentication purposes, Platform Events, and the Pub/Sub API.

Setup Connected App Access

A connected app is required to allow the accounting system to access the Pub/Sub API. Through the connected app there are several OAuth authorization flows supported by Salesforce. The setup below outlines the setup of an OAuth 2.0 Client Credentials
Flow connected app. Other flows are also supported.

Three fields must be sent to the accounting partner to complete the Pub/Sub setup process. Each are referenced in the stens below. They are the Consumer Key, Consumer Secret, and Current My Domain URI fields

Step 1: Create a new API user

Create a new user:

- 1. Navigate to **Setup** and then search for and click the **Users** link.
- $_{\rm 2.}$ Click the New User button and add the following:
- 3. First Name: Accounting
- 4. Last Name: Integration
- 5 Email: Set to the system admin's email
- 6. Username: Change if necessary.
- 7. User License: Salesforce
- 8. Profile: Standard User

The User First Name and Last Name can be any value, but should reference accounting for simplicity.

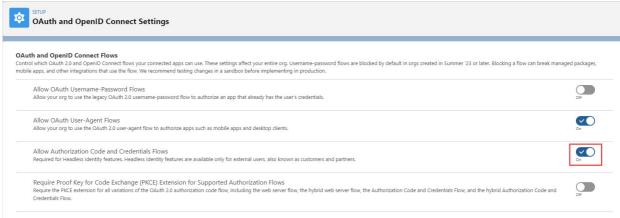
9. Click Save.

• Add the Permission Set TMS Accounting Integration to the user.



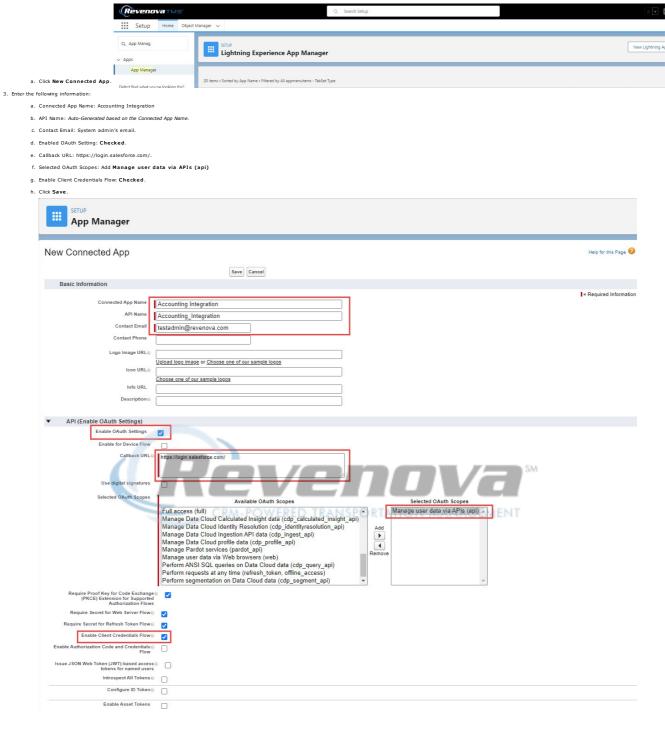
Step 2: Create the Connected App

- 1. Navigate to Setup and then search for and click the OAuth and OpenID Connect Settings link
 - a. Enable Allow Authorization Code and Credentials Flows



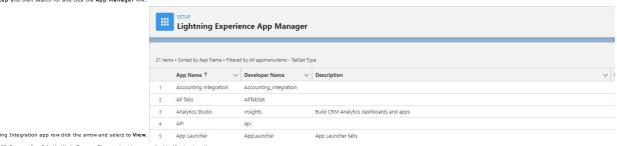
2. Navigate to Setup and then search for and click the App Manager link





Step 3: Setup the Connected App

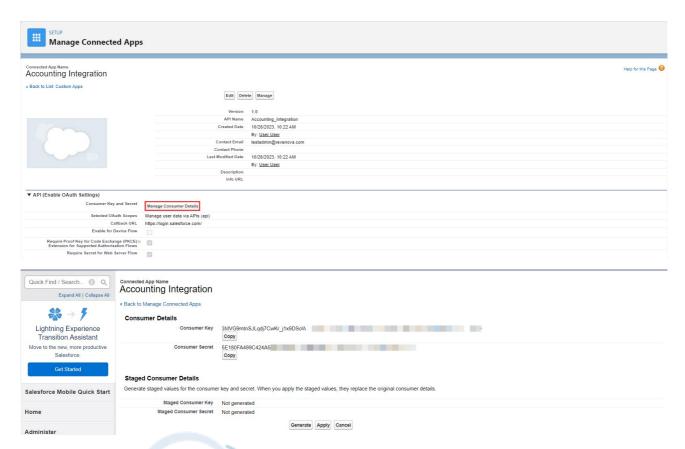
1. Navigate to **Setup** and then search for and click the **App Manager** link



- 3. Go to Trusted IP Range for OAuth Web Server Flow and add any applicable IPs (optional).
- 4. Click Manage Consumer Details to access the Consumer Key and Consumer Secret which are required for the accounting system.

The Consumer Key and Consumer Secret are provided by the accounting partner.





Step 4: Setup Client Credentials Flow

- 1. Navigate to Setup and then search for and click the App Manager link.
- 2. In the Accounting Integration app row dick the arrow and select to View.
- 3. Click Manage at the top of the page.



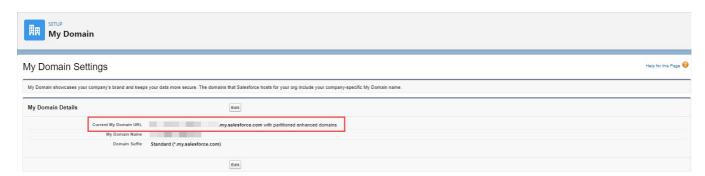
- 4. Click Edit Policies
- 5. Under Client Credentials Flow Set Run As to the new user that was created (Accounting Integration).



- 6. Click Save
- 7. The following endpoint must be provided to the accounting system. "(domain)" is found by navigating to Setup, search for My Domain and click the link. Copy the link from Current My Domain URL into the URL below.
 - a. OAuth authorization endpoint: https://{domain}/services/oauth2/token

The Current My Domain URL field must be sent to the accounting partner to complete setup





Accounting System Access to the Pub/Sub API

Salesforce documentation should be consulted for details on accessing the Pub/Sub API with the accounting system. The accounting system requires the URL created above with the Consumer Key and Consumer Secret.

Salesforce Pub/Sub API Documentation

Publishing and Subscribing to the Event Bus

Each time a payload is published or a subscribed payload is received is called an "Event." Each event has a unique field, the **EventUUID**. If there is an Event failure, a Queued Transaction is created with the EventUUID and the system administrator is notified.

Inhound Events

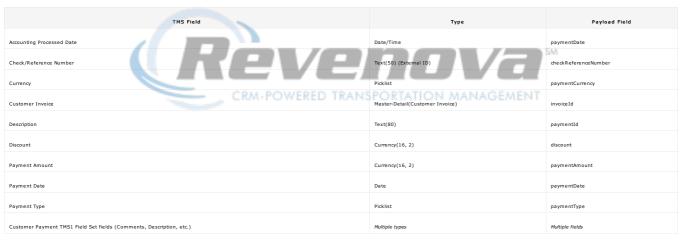
The TMS "listens" for subscribed events from the Event Bus. When subscribed events occur, the records are added to the TMS. The two events the TMS listens for are published Customer Payments and Vendor Payments.

Subscribing events call the streamFetchRequest API and receive a streamFetchResponse in return.

Customer Payment

When a cash application is posted to a Customer Invoice in the accounting system, a payload is published to the Event Bus. The TMS is subscribed to these events and accepts the payload.

The following fields for a Customer Payment record are created and populated from the Event Bus.



Additional fields may be added to the <u>Customer Payment TMS1</u> Field Set and set by inbound Customer Payment events



Vendor Payment

Payloads are published when a cash application is posted to a Vendor Invoice in the accounting system. The TMS is subscribed to these events and accepts the payload.

The following fields for a Vendor Payment record are created and populated from the Event Bus.

TMS Field	Туре	Payload Field
Accounting Processed Date	Date/Time	paymentDate
Check/Reference Number	Text(50) (ExternalID)	checkReferenceNumber
Currency	Picklist	paymentCurrency
Description	Text(80)	paymentId
Discount	Currency(16, 2)	discount
Payment Amount	Currency(16, 2)	paymentAmount
Payment Date	Date	paymentDate
Payment Type	Picklist	paymentType
Vendor Invoice	Lookup(Vendor Invoice)	invoiceId
Vendor Payment TMS1 Field Set fields (Comments, Description, etc.)	Multiple types	Multiple fields

Additional fields may be added to the <u>Vendor Payment TMS1</u> Field Set and set by inbound Vendor Payment events.

Outbound Events

The TMS publishes events to the Event Bus. When publish events occur, the records are sent to the Event Bus and are then received by the accounting integration. There are five events the TMS publishes for the accounting system. They include Customer, Customer Invoice, Vendor, Vendor Invoice, and Load event payloads.

The TMS uses Platform Events when publishing to the Event Bus for lightweight and near real time sending of data.

Most outbound payloads include the Salesforce Record ID of the record that is sent as a payload field. See Salesforce for more information on locating the record ID.

Prepare to send accounting information from the TMS by setting the **Accounting Status** picklist field to *Ready for Accounting*. The **Accounting Status** field is a managed Global Picklist Value Set and should not be changed. After a successful publish event, the **Accounting Status** changes to *Sent to Accounting*. A status of *Publish Error* displays if there is an issue and an email is sent to the system administrator.

Several field sets trigger publishing events when values are changed. Add fields to these field sets to send updated information to the accounting integration.

Field Set	Event Trigger
Account TMS6	Customer Accounting Event
Account TMS7	Vendor Accounting Event
Contact TMS4	Customer or Vendor Accounting Event
Load TMS33	Load Accounting Event
Transportation Profile TMS3	Customer Accounting Event
Transportation Profile TMS4	Vendor Accounting Event

Publishing events call the PublishRequest API and receive a PublishResponse in return.

Customer Payload

The following fields for an Account (Customer) record are published to the Event Bus for the accounting integration.



TMS Field	Туре	Payload Field
i no rieu	Туре	rayload Held
Account Currency	Picklist	customerCurrency
Account Name	Text(255)	customerName
customer.Id	Salesforce Record ID	customerId
See Contacts Payload	Payload	contacts
DBA Name	Text(80)	dbaName
Default Customer Bill To (Transportation Profile)	Lookup(Account)	defaultCustomerBillToId
Default Customer Bill To (Transportation Profile)	Lookup(Account)	defaultCustomerBillToName
Billing Address	Address	billingStreet
Billing Address	Address	billingCity
Billing Address	Address	billingState
Billing Address	Address	billingPostalCode
Billing Address	Address	billingCountry
Shipping Address	Address	shippingStreet
Shipping Address	Address	shippingCity
Shipping Address	Address	shippingState
Shipping Address	Address	shippingPostalCode
Shipping Address	Address	shippingCountry
TMS Type	Picklist (Multi-Select)	tmsType
Account TMS8 Field Set fields	Multiple types	Multiple fields
Transportation Profile TMSS Field Set fields	Multiple types	Multiple fields

```
{
    "customerId": "ljs8dje8dje0dke9eq",
    "customerName": "ABC Company",
    "deName": "ABC Company",
    "tastype": "Customern",
    "defaultCustomerBillToId": "aus8dje8dje9dke9ew",
    "efefaultCustomerBillToId": "aus8dje8dje9dke9ew",
    "elfaultCustomerBillTolame": "ABC Company",
    "pillingStreet": "2333 Waukegan Road",
    "pillingStrate": "IL",
    "pillingStreet": "2333 Waukegan Road",
    "shippingStalCode": "6e015",
    "shippingStalCode": "6e015",
    "shippingState": "IL",
    "shippingState": "IL",
    "shippingState": "IL",
    "shippingCountry": "USD",
    "contactId": "ld8dkj38dkj38dk39d",
        "firsName": "6eonge",
    "lastName": "6eonge",
    "lastName": "6eonge",
    "lastName": "5siley"
    "email": "gsmlley@revenova.com",
    "phome": 312-333-9999",
    "role": "81lling"
}

**CustomFields":

{
    "fieldname": "Custom Field_c",
    "value": "customValue"
}
}

**Journal of the Custom Field_c",
    "value": "customValue"
}
}
```

Vendor Payload

The following fields for an Account (Vendor) record are published to the Event Bus for the accounting integration.



TMS Field	Туре	Payload Field
Account Currency	Picklist	vendorCurrency
Account Name	Text(255)	vendorName
vendor.Id	Salesforce Record ID	vendorId
Carrier Remit To (Transportation Profile)	Lookup(Account)	CarrierRemitToId
Carrier Remit To (Transportation Profile)	Lookup(Account)	CarrierRemitToName
See Contacts Payload	Payload	contacts
DBA Name	Text(80)	dbaName
Billing Address	Address	billingStreet
Billing Address	Address	billingCity
Billing Address	Address	billingState
Billing Address	Address	billingPostalCode
Billing Address	Address	billingCountry
MC/MX/FF Number (Transportation Profile)	Text(20)	mcNumber
Shipping Address	Address	shippingStreet
Shipping Address	Address	shippingCity
Shipping Address	Address	shippingState
Shipping Address	Address	shippingPostalCode
Shipping Address	Address	shippingCountry
TMS Type	Picklist (Multi-Select)	tmsType
US DOT Number (Transportation Profile)	Text(10)	dotNumber
Account TMS9 Field Set fields	Multiple types	Multiple fields
Transportation Profile TMS6 Field Set fields	Multiple types	Multiple fields

Contacts Payload

The following fields for a Contact record are published to the Event Bus as part of Customer and Vendor payloads. Multiple Contact records may be added to a single Customer or Vendor payload.

TMS Field	Туре	Payload Field
ontact.Id	Salesforce Record ID	contactId
Email	Email	email
Name	Text(40)	firstName
Name	Text(80)	lastName
Phone	Phone	phone
Transportation Role	Picklist (Multi-Select)	role

Load Payload

The following fields for a Load record are published to the Event Bus for the accounting integration.



TMS Field	Туре	Payload Field
Carrier Sales Rep	Salesforce Record ID	carrierSalesRepId
Carrier Sales Rep (Name)	Carrier Sales Rep (Name)	carrierSalesRepName
Customer (Salesforce record ID)	Lookup(Account)	customerId
Customer	Lookup(Account)	customerName
Customer Bill To	Salesforce Record ID	customerBillToId
Customer Bill To (Name)	Lookup(Account)	customerBillToNa me
Customer Sales Rep	Salesforce Record ID	customerSalesRepId
Customer Sales Rep (Name)	Lookup(User)	customerSalesRepName
load.Id	Salesrorce Record ID	loadId
Load Number	Text(80)	load Nam e
Mode	Lookup(Mode)	mode
Total Weight	Number(18, 0)	weight
Weight Units	Picklist	weightUnits
See Stops Payload	Payload	stops
Load TMS34 Field Set fields	Multiple types	Multiple fields





```
ISON
     "loadId": "1js8dje8dje9dke9et",
"loadName": "Load-12345",
"customerId": "1js8dje8dje9dke9eq",
"customerName": "ABC Company",
     "customerBillToId": "1js8dje8dje9dke9eq",
"customerBillToName": "ABC Company",
     "customerSalesRepId": "1je8dje8e6ehe9eie8",
"customerSalesRepName": "George Smiley",
"carrierSalesRepId": "1je8dje8e6ehe9eie8",
      "carrierSalesRepName": "Roy Bland",
      "mode": "Truckload",
"weight": 20000,
      "weightUnits": "lbs",
      "stops":
      "stopId": "2j8fj3d9dkj3d9dk303",
                 "stopNumber": 1,
                 "isPickup": true,
                 "isDelivery": false,
"expectedDate": "2023-01-22",
                 "appointmentTime": "10:00",
"locationName": "ABC Warehouse",
                 "street": "123 North Ave.",
"city": "Chicago",
"state": "IL",
"postalCode": "60603",
                  "country": "US"
           },
       "stopId": "2j8fj3d9dkj3d9dk223",
                 "stopName": "Stop 2",
"stopNumber": 2,
                 "isPickup": false
                 "isDelivery": true,
"expectedDate": "2023-01-22",
                 "appointmentTime": "10:00"
                 "locationName": "DEF Warehouse
                 "street": "333 North Ave.",
                 "city": "Chicago",
                 "state": "IL",
"postalCode": "60603",
                 "country": "US"
                                                                              CRM-POWERED TRANSPORTATION MANAGEMENT
      "customFields":
                 "fieldname": "Custom_Field__c",
                 "value": "customValue"
```

Stops Payload

The following fields for a Stop record are published to the Event Bus as part of a single Load Payload. Multiple Stop records may be added to a Load payload.



TMS Field	Туре	Payload Field
Appointment Time	Text(11)	appointmentTime
Expected Date	Date	expectedDate
Is Dropoff	Checkbox	isDelivery
Is Pickup	Checkbox	isPickup
Location Name	Formula (Text)	locationName
Number	Number(3, 0)	stopNumber
Location	Lookup(Account)	street
Location	Lookup(Account)	dty
Location	Lookup(Account)	state
Location	Lookup(Account)	postalCode
Location	Lookup(Account)	country
Stop	Text(80)	stopName
stop.Id	Salesforce Record ID	stopId

Customer Invoice Payload

The following fields for a Customer Invoice record are published to the Event Bus for the accounting integration.

TMS Field	Туре	Payload Field
(Load) Customer	Salesforce Record ID	customerId
Ситепсу	Picklist	invoiceCurrency
Customer Bill To (Billing Contact or Load Customer)	Salesforce Record ID	customerBillToId
Invoice Date	Date	invoiceDate
Invoice Due Date	Date	invoiceDueDate
invoice.id	Salesforce Record ID	invoiceId
Invoice Number	Text(80)	invoiceNumber
Invoice Total CRM-POWERED TRANSPORTAT	Currency(16, 2)	invoiceTotal
Invoice Total (0 or greater is an Invoice; negative number is a Credit)	Currency(16, 2)	invoiceType
load.Id	Salesforce Record ID	loadId
Load	Master-Detail(Load)	loadNumber
Payment Discount	Currency(16, 2)	paymentDiscount
Tax Amount	Currency(16, 2)	taxamount
See Charges Payload	Payload	charges
Customer Invoice TMS2 Field Set fields	Multiple types	Multiple fields
Customer Invoice Accessorial TMS1 Field Set fields	Multiple types	Multiple fields



```
ISON
     "invoiceId": "1js8dje8dje9dke9ew",
    "invoiceNumber": "L-1919293",
"invoiceType": "Invoice",
"customerId": "aus8dje8dje9dke9ew",
    "customerBillToId": "aus8dje8dje9dke9ew",
    "loadId": "s823js8ew888fk39dk",
    "loadNumber": "Load-123",
"invoiceDate": "2023-01-23"
    "invoiceDueDate": "2023-02-23"
    "invoiceTotal": 2222.50,
     "paymentDiscount": 0.00
     "taxAmount": 0.00,
    "invoiceCurrency": "USD",
     "charges":
             "chargeType": "Freight",
             "description": "Freight",
             "unit": "Per Mile",
             "unitQuantity": 1000
             "unitPrice": 1.00,
             "chargeAmount": 1000.00,
     "customFields":
             "fieldname": "Custom_Field__c",
             "value": "customValue"
        },
             "chargeType": "Fuel",
             "description": "Fuel",
             "unit": "Per Mile",
             "unitQuantity": 1000
             "unitPrice": 1.00,
             "chargeAmount": 1000.00
     "customFields":
             "fieldname": "Custom Field
             "value": "customValue"
                                                           CRM-POWERED TRANSPORTATION MANAGEMENT
             "chargeType": "Accessorial",
             "description": "Lift Gate Pickup",
"accessorialId": "q2d4s8ewh37su28sj3",
             "unit": "Per Mile"
             "unitQuantity": 1000
             "unitPrice": 0.10,
             "chargeAmount": 100.00,
     "customFields":
             "fieldname": "Custom_Field__c",
             "value": "customValue"
     "customFields":
             "fieldname": "Custom_Field__c",
             "value": "customValue"
```

Vendor Invoice Payload

The following fields for a Vendor Invoice record are published to the Event Bus for the accounting integration.



TMS Field	Туре	Payload Field
Vendor	Lookup(Account) Salesforce Record ID	vendorId
Ситепсу	Picklist	invoiceCurrency
Remit To	Lookup(Account) Salesforce Record ID	vendorRemitToId
Invoice Date	Date	invoiceDate
Invoice Due Date	Date	invoiceDueDate
invoice.id	Salesforce Record ID	invoiceId
Invoice Number	Text(80)	invoiceNumber
Invoice Total	Currency(16, 2)	invoiceTotal
Invoice Total (0 orgreater is an Invoice; negative number is a Credit)	Currency(16, 2)	invoiceType
load.Id	Salesforce Record ID	loadId
Load	Master-Detail(Load)	loadNumber
Payment Discount	Currency(16, 2)	paymentDiscount
See Charges Payload	Payload	charges
Vendor Invoice TMS2 Field Set fields	Multiple types	Multiple fields
Vendor Invoice Accessorial TMS1 Field Set fields	Multiple types	Multiple fields





```
ISON
     "invoiceId": "1js8dje8dje9dke9ew",
    "invoiceNumber": "L-1919293",
"invoiceType": "Invoice",
    "vendorId": "aus8dje8dje9dke9ew"
    "vendorRemitToId": "1kmd8dk30d3l130dd",
    "loadId": "s823js8ew888fk39dk",
    "loadNumber": "Load-123"
    "nvoiceDate": "2023-01-23"
    "invoiceDueDate": "2023-02-23"
    "invoiceTotal": 100.50,
    "paymentDiscount": 0.00,
"invoiceCurrency": "USD",
    "charges":
             "chargeType": "Freight"
             "description": "Freight",
             "unit": "Per Mile"
             "unitQuantity": 1000
             "unitPrice": 1.00,
             "chargeAmount": 1000.00,
    "customFields":
             "fieldname": "Custom_Field__c",
             "value": "customValue"
             "chargeType": "Fuel",
             "description": "Fuel",
             "unit": "Per Mile"
             "unitQuantity": 1000
             "unitPrice": 1.00,
             "chargeAmount": 1000.00,
    "customFields":
             "fieldname": "Custom_Field_
             "value": "customValue"
             "chargeType": "Accessorial",
             "description": "Lift Gate Pickup",
             "accessorialId": "q2d4s8ewh37su28sj3",
             "unit": "Per Mile"
             "unitQuantity": 1000
             "unitPrice": 0.10,
             "chargeAmount": 100.00,
     "customFields":
             "fieldname": "Custom_Field__c",
             "value": "customValue"
    "customFields":
             "fieldname": "Custom_Field__c",
             "value": "customValue"
```

Charge Payloads

The following fields for a Charge record are published to the Event Bus as part of Customer and Vendor Invoice payloads. Multiple Charge records may be added to a single Customer or Vendor invoice from the respective objects.



TMS Field	Туре	Payload Field
Accessorial	Salesforce Record ID	accessorialId
Charge	Currency(16, 2)	chargeAmount
	"Freight"/"Fuel"/"Accessorial"/"Adjustment"/"Taxes"	chargeType
Accessorial	Lookup(Accessorial)	description
Adjustment Amount (Customer Invoice Adjustment/Vendor Invoice Adjustment)	Currency(16, 2)	adjustment
Unit	Picklist	unit
Unit Price	Number(16, 2)	unitPrice
Quantity	Number(16, 2)	unitQuantity
Customer Invoice Accessorial TMS1 Field Set fields (Customer Invoice Payloads ONLY)	Multiple types	Multiple fields
Vendor Invoice Accessorial TMS1 Field Set fields (Vendor Invoice Payloads ONLY)	Multiple types	Multiple fields

Freight & Fuel Accessorial Charge Fields

TMS Field	Freight/Type	Fuel/Type
Unit	Freight Charge Unit/Picklist	Fuel Surcharge Unit/Picklist
Unit Price	Freight Charge Unit Price/Currency(16, 2)	Fuel Surcharge Unit Price/Currency(14, 4)
Quantity	Freight Charge Quantity/Number(16, 2)	Fuel Surcharge Quantity/Number(16, 2)
Charge	Net Freight Charges/Currency(16, 2)	Fuel Surcharge/Currency(16, 2)

