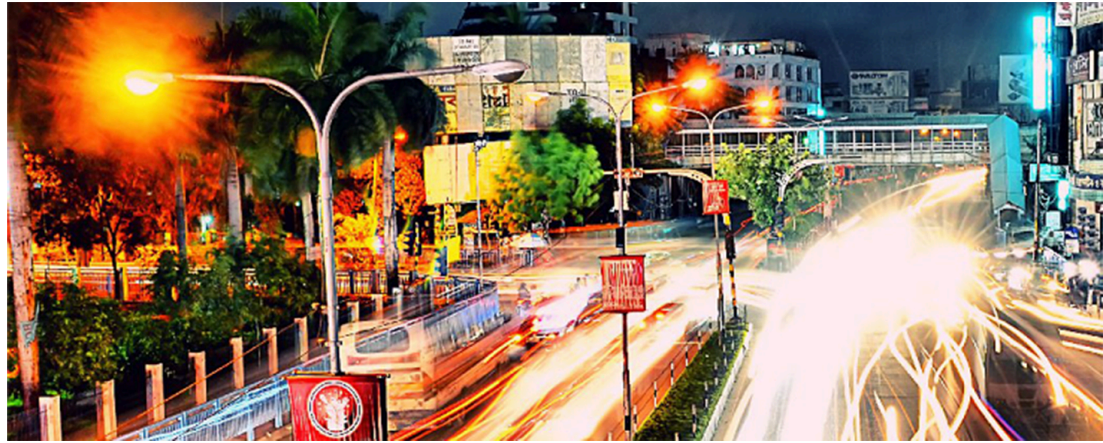


Level II and Level III Processing

REST API

TSYS Acquiring Solutions

Developer Guide



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Introduction to Level II and Level III Processing

For business to business customers, Level II and Level III processing can provide lower interchange rates in exchange for providing more information during a transaction.

Level II processing includes additional customer and tax information for the transaction. Currently, American Express, Mastercard, and Visa support Level II processing. Before you can use Level II processing with American Express, you must contact American Express and obtain approval to process Level II transactions.

Level III processing includes line-item data for each transaction. Currently, Mastercard and Visa support Level III processing.

This document provides guidelines that indicate which fields are required to obtain the best interchange rates. These guidelines are based on industry information available at the time of publication. Cybersource recommends that you contact your acquirer for the most current information requirements, as these requirements can change at any time.

About Level II Data

Level II cards, which are also called *Type II cards*, provide customers with additional information on their credit card statements about their purchases. Level II cards enable customers to easily track the amount of sales tax they pay and to reconcile transactions with a unique customer code. There are two categories of Level II cards:

- Business/corporate cards are given by businesses to employees for business-related expenses such as travel and entertainment or for corporate supplies and services.
- Purchase/procurement cards are used by businesses for expenses such as supplies and services. These cards are often used as replacements for purchase orders.

Each processor supports a different set of Level II fields. If your business is not in the United States, you must use additional fields.

About Level III Data

You can provide Level III data for purchase/procurement cards, which are used by businesses for expenses such as supplies and services. These cards are often used as replacements for purchase orders. The Level III data is forwarded to the company that made the purchase. It enables the company to manage its purchasing activities.

Unless otherwise specified, Level III transactions must include Level II data.

Supported Processors and Card Types

The following processors can be used to process Level II and Level III transactions.

Processor	Level II Card Types Supported	Level III Card Types Supported
American Express Direct	<ul style="list-style-type: none"> • American Express 	<ul style="list-style-type: none"> • American Express
Chase Paymentech Solutions	<ul style="list-style-type: none"> • American Express • Mastercard • Visa 	<ul style="list-style-type: none"> • Mastercard • Visa
Elavon Americas	<ul style="list-style-type: none"> • Mastercard • Visa 	<ul style="list-style-type: none"> • Mastercard • Visa
FDC Compass	<ul style="list-style-type: none"> • American Express • Mastercard • Visa 	<ul style="list-style-type: none"> • Mastercard • Visa
FDC Nashville Global	<ul style="list-style-type: none"> • American Express • Mastercard • Visa 	<ul style="list-style-type: none"> • Mastercard • Visa
FDMS Nashville	<ul style="list-style-type: none"> • Mastercard • Visa 	<ul style="list-style-type: none"> • None
FDMS South	<ul style="list-style-type: none"> • Mastercard • Visa 	<ul style="list-style-type: none"> • None
GPN	<ul style="list-style-type: none"> • Mastercard • Visa 	<ul style="list-style-type: none"> • Mastercard • Visa
OmniPay Direct	<ul style="list-style-type: none"> • Mastercard • Visa 	<ul style="list-style-type: none"> • Mastercard • Visa
RBS WorldPay Atlanta	<ul style="list-style-type: none"> • Mastercard • Visa 	<ul style="list-style-type: none"> • Mastercard • Visa
TSYS Acquiring Solutions	<ul style="list-style-type: none"> • Mastercard • Visa 	<ul style="list-style-type: none"> • Mastercard • Visa
Visa Platform Connect	<ul style="list-style-type: none"> • American Express • Mastercard • Visa 	<ul style="list-style-type: none"> • Mastercard • Visa
Worldpay VAP	<ul style="list-style-type: none"> • American Express • Mastercard • Visa 	<ul style="list-style-type: none"> • Mastercard • Visa

About Level II and Level III Data Processing

Level II and Level III data is not stored. The data is passed through to the processor. Thus if you request multiple partial captures or credits, you will need to include the Level II and Level III data in each request.

During the data processing, minimal validation is performed to minimize interference with business policies between the merchant and customers.

If Level III transactions produce batching errors while transmitting data to the processor, Level III processing field is disabled (value set to **N**) and the merchant is sent a message showing the change in status. When this happens, the request is not rejected, and the disabled processing field is included in the status message.

- For captures, the disabled field is **bill_purchasing_level3_enabled**
- For credits, the disabled field is **credit_purchasing_level3_enabled**

For example, when a capture transaction produce batching errors, the **bill_purchasing_level3_enable** field is set to **N**.

Prerequisites for Level II Processing

To activate Level II processing for American Express, contact American Express and Cybersource Customer Support.

Prerequisites for Level III Processing

Check with your processor to determine whether you need to add Level III processing to your contract or account setup.

When you are ready to go live with Level III processing, contact customer support to have your account configured to process Level III transactions, you will receive an error for invalid data.

Relaxed Requirements for Address Data and Expiration Date

To enable relaxed requirements for address data and expiration dates, contact Customer Support. For details about relaxed requirements, see [Relaxed Requirements for Address Data and Expiration Dates](#).

numbered-elements

The cybersource XML schema includes several numbered elements. You can include these complex elements more than once in a request. For example, when a customer order includes more than one item, you must include multiple **<item>** elements in your request. Each item is numbered, starting with **0**. The XML schema uses an **id** attribute in the item's opening tag to indicate the number. For example:

<item id="0">

As a name-value pair field name, this tag is represented as an **item_0**. In this portion of the field name, the underscore before the number does not indicate hierarchy in the XML schema. The item fields are generically referred to as **item_#_<element-name>** in the documentation.

Below is an example of the numbered **<item>** element and the corresponding name-value pair field names. If you are using the Simple Object Access Protocol (SOAP), the client contains a corresponding **Item** class.

Using Decimals and Strings

Cybersource uses decimal points in all amount and tax rate fields; Cybersource does not use implied decimal points. For example, if the amount of the product being purchased is 29.95, set that field to `29.95`.

For tax rates used with Level III transactions, you need to include a decimal point in the value. For example, if a tax rate is 1%, you should set that field to `0.01`.

For many of the fields described in this document, Visa and Mastercard permit different lengths for alphanumeric (string) input. Cybersource accepts any length you provide. If the value you provide is longer than the payment card company permits, Cybersource truncates the value, keeping the left-most portion of the value. If the value you provide is shorter than the payment card company requires, Cybersource pads the field before sending it to the processor.

Requesting Captures and Credits with Level II Data

Important:


For all processors except Visa Platform Connect, you must check to ensure your account is enabled for Level III transactions. If your account is not enabled for level III data, the Level III data will not be sent to the processor.

To validate Level III credit transactions are enabled on your account, ensure the **orderInformation.invoiceDetails.level3TransmissionStatus** field is set to `True`.

1. Authorize a credit card payment.
2. Capture the authorization.

Include the following information in the capture request:


- Basic fields required for every capture request.
- Level II data. See the chapter in this document for the processor you are using.

 **Important:** If you omit required Level II fields from a request, the transaction does not fail. Instead, it is processed as a regular non-Level II transaction. This could result in higher fees or penalties assessed against your account. Contact your processor to ensure you understand your processor's specific requirements for Level II transactions.

3. For all processors except Visa Platform Connect, ensure Level III data was transmitted.
4. Credit the payment. (if necessary)

Include the following information in the credit request:

- Basic fields required for every credit request.
- Level II data. See the chapter in this document for the processor used.

 **Important:** If you omit required Level II fields from a request, the transaction does not fail. Instead, it is processed as a regular non-Level II transaction. This could result in higher fees or penalties assessed against your account. Contact your processor to ensure you understand your processor's specific requirements for Level II transactions.

5. For all processors except Visa Platform Connect, ensure Level III data was transmitted.

Requesting Captures and Credits with Level III Data

To include Level III data in a capture or credit request:


1. Authorize a credit card payment.

It is recommended that for Level III transactions you include the total order amount in the authorization request, even though it is not required. Doing so ensures that your total order amount is used and that the capture or credit request total amount matches the original authorization total amount.

2. Capture the authorization.

Include the following information in the capture request:

- Basic fields required for every capture request.
- Level II and Level III data. See the chapter in this document for the processor used.


 **Important:** If you omit required Level II and Level III fields from a request, the transaction does not fail. Instead, it is processed as a regular transaction. This could result in higher fees or penalties assessed against your account. Contact your processor to ensure you understand your processor's specific requirements for Level III transactions.

- Purchasing level field set to Level III

3. Credit the payment. (if necessary)

Include the following information in the credit request:

- Basic fields required for every credit request.
- Level II and Level III data. See the chapter in this document for the processor used.

 **Important:** If you omit required Level II and Level III fields from a request, the transaction does not fail. Instead, it is processed as a regular transaction. This could result in higher fees or penalties assessed against your account. Contact your processor to ensure you understand your processor's specific requirements for Level II transactions.


- Purchasing level field set to Level III

Processor Information

This section provides details associated with each processor that supports Level II and/or Level III data.

TSYS Acquiring Solutions

TSYS Acquiring Solutions can be used to process Mastercard and Visa Level II and Level III transactions.

 **Important:** This information provides guidelines that indicate which fields are needed in order to obtain the best interchange rates. The guidelines are based on industry information. It is recommended that you contact your acquirer for the most current information because the payment card companies can change their requirements at any time.


The specifications used to implement Level III processing for TSYS Acquiring Solutions is the Vital's EIS 1081, Level III Line Item Processing, version 6.4, April 2004.

The records referenced are:

- Transaction Detail Record - Optional Data; Group 25, 26, and 27
- Visa Card Non-T&E and Fleet (Non-fuel) Line Item Detail Record
- Mastercard Card Non-T&E and Fleet (Non-fuel) Line Item Detail Record

Transactions

TSYS Acquiring Solutions requires the following fields in Level II and Level III transactions:

 **Important:**
When you send a capture or credit request with Level II or Level III data or both, you must include the required fields for every capture or credit request. For information about the non-Level-II and non-Level-III fields required for capture and credit requests, see .

Level II

The following field is required for level II transactions:

- **orderInformation.lineItems[].unitPrice**
- **orderInformation.lineItems[].taxAmount**
- **orderInformation.invoiceDetails.purchaseOrderNumber:** Required for purchase/procurement cards only

Level III

The following fields are required for level III transactions:

- **orderInformation.amountDetails.totalAmount**
- **orderInformation.invoiceDetails.commodityCode**: Required for Visa transactions only
- **orderInformation.lineItems[].amountIncludesTax**: Required for Mastercard transactions only
- **orderInformation.lineItems[].commodityCode**: Required for Visa transactions only
- **orderInformation.lineItems[].productCode**: Required for Mastercard transactions only
- **orderInformation.lineItems[].productName**: Required for Mastercard transactions only
- **orderInformation.lineItems[].quantity**
- **orderInformation.lineItems[].taxAmount**
- **orderInformation.lineItems[].taxRate**: Required for Mastercard transactions only
- **orderInformation.lineItems[].totalAmount**
- **orderInformation.lineItems[].unitOfMeasure**: Required for Mastercard transactions only
- **orderInformation.shipTo.country**: Required for Visa transactions only
- **orderInformation.shipTo.postalCode**
- **processingInformation.purchaseLevel**

Available Fields

Request:

- buyerInformation.vatRegistrationNumber
- merchantInformation.vatRegistrationNumber
- orderInformation.amountDetails.discountAmount
- orderInformation.amountDetails.dutyAmount
- orderInformation.amountDetails.freightAmount
- orderInformation.amountDetails.taxDetails[].amount
- orderInformation.lineItems[].taxDetails[].code
- orderInformation.amountDetails.taxDetails[].rate
- orderInformation.amountDetails.taxDetails[].taxID
- orderInformation.amountDetails.totalAmount
- orderInformation.amountDetails.taxDetails[].amount
- orderInformation.amountDetails.nationalTaxIncluded
- orderInformation.amountDetails.totalAmount
- orderInformation.invoiceDetails.commodityCode
- orderInformation.invoiceDetails.purchaseOrderDate
- orderInformation.invoiceDetails.purchaseOrderNumber
- orderInformation.invoiceDetails.vatInvoiceReferenceNumber
- orderInformation.shippingDetails.shipFromPostalCode
- orderInformation.shipTo.administrativeArea
- orderInformation.shipTo.country
- orderInformation.shipTo.postalCode
- processingInformation.purchaseLevel

Offer-level request:

- orderInformation.lineItems[].amountIncludesTax
- orderInformation.lineItems[].commodityCode
- orderInformation.lineItems[].discountAmount
- orderInformation.lineItems[].discountApplied
- orderInformation.lineItems[].discountRate
- orderInformation.lineItems[].invoiceNumber
- orderInformation.lineItems[].productCode
- orderInformation.lineItems[].productName
- orderInformation.lineItems[].quantity
- orderInformation.lineItems[].taxAmount
- orderInformation.lineItems[].taxDetails[].applied
- orderInformation.lineItems[].taxDetails[].taxID
- orderInformation.lineItems[].taxRate
- orderInformation.lineItems[].taxTypeCode
- orderInformation.lineItems[].totalAmount
- orderInformation.lineItems[].unitOfMeasure
- orderInformation.lineItems[].unitPrice

Reference Information

The following reference information is included:

- [Exemption Status Values](#)
- [Product Codes](#)
- [Reference Data Codes](#)
- [Units of Measurement Codes](#)

Exemption Status Values

Product Codes

The following table lists the values you can use for the product code in the .

Table 1. Product Codes

Product Code	Definition
adult_content	Adult content.
coupon	Coupon applied to the entire order.
default	Default value for the product code. Cybersource uses default when a request message does not include a value for the product code.
electronic_good	Electronic product other than software.
electronic_software	Software distributed electronically rather than on disks or other media.
gift_certificate	Gift certificate.
handling_only	Fee that you charge your customer to cover your administrative selling costs.
service	Service that you perform for your customer.
shipping_and_handling	The shipping portion is the charge for shipping the product to your customer. The handling portion is the fee you charge your customer to cover your administrative selling costs.

Table 1. Product Codes (continued)

Product Code	Definition
shipping_only	Charge for transporting tangible personal property from your location to your customer. You must maintain documentation that clearly establishes the location where the title to the property passed from you to your customer.
subscription	Subscription to a website or other content.

Reference Data Codes

Units of Measurement Codes

The following table lists the codes for units of measurement used in international trade.

Value	Description
EA	Unknown unit of measure
ACR	Acre (4840 yd ²)
AMH	Ampere-hour (3.6 kC)
AMP	Ampere
ANN	Year
APZ	Ounce GB, US (31.10348 g) (tr oz.)
ARE	Are (100 m ²)
ASM	Alcoholic strength mass
ASV	Alcoholic strength by volume
ATM	Standard atmosphere (101325 Pa)
ATT	Technical atmosphere (98066.5 Pa)
BAR	Bar
BFT	Board foot
BG	Unknown unit of measure
BHP	Brake horsepower (745.7 W)
BHX	Hundred boxes
BIL	Billion Eur (trillion US)

Value	Description
BLD	Dry barrel (115.627 dm ³)
BLL	Barrel
BQL	Becquerel
BTU	British thermal unit (1.055 Kilojoules)
BUA	Bushel (35.2391 dm ³)
BUI	Bushel (36.36874 dm ³)
BX	Unknown unit of measure
C	Unknown unit of measure
CA	Unknown unit of measure
CCT	Carrying capacity in metric tons
CD	Unknown unit of measure
CDL	Candela
CEL	Celsius degrees
CEN	Hundred
CGM	Centigram
CKG	Coulomb per kg
CLF	Hundred leaves
CLT	Centiliter
CMK	Square centimeter
CMT	Centimeter
CNP	Hundred packs
CNT	Cental GB (45.359237 kg)
COU	Coulomb
CS	Unknown unit of measure
CTM	Metric carat (200 Mg = 2.10 ⁻⁴ kg)
CUR	Curie
CWA	Hundredweight US (45.3592 kg)
D	Unknown unit of measure
DAA	Decare
DAD	Ten days

Value	Description
DAY	Day
DEC	Decade (10 years)
DLT	Deciliter
DMK	Square decimeter
DMQ	Cubic decimeter
DMT	Decimeter
DPC	Dozen pieces
DPT	Displacement tonnage
DRA	Dram US (3.887935 g)
DRI	Dram GB (1.771745 g)
DRL	Dozen rolls
DRM	Drachm gm (3.887935 g)
DTH	Hectokilogram
DTN	Centner / Quintal, metric (100 kg) (decitonne)
DWT	Pennyweight GB, US (1.555174 g)
DZ	Unknown unit of measure
DZN	Dozen
DZP	Dozen packs
DZR	Dozen pairs
EA	Unknown unit of measure
EAC	Each
FAH	Fahrenheit degrees
FAR	Farad
FOT	Foot (.3048 m)
FT	Unknown unit of measure
FTK	Square foot
FTQ	Cubic foot
G	Unknown unit of measure
GAL	Unknown unit of measure
GBQ	Gigabequerel

Value	Description
GFI	Gram of fissile isotopes
GGR	Great gross (12 gross)
GIA	Gill (11.8294 cm ³)
GII	Gill (0.142065 dm ³)
GLD	Dry gallon (4.404884 dm ³)
GLI	Gallon (4.546092 dm ³)
GLL	Liquid gallon (3.78541 dm ³)
GRM	Gram
GRN	Grain GB, US (64.798910 mg)
GRO	Gross
GRT	Gross (Register) ton
GWH	Gigawatt-hour (1 Million kWh
HAR	Hectare
HBA	Hectobar
HGM	Hectogram
HIU	Hundred international units
HLT	Hectoliter
HMQ	Million cubic meters
HMT	Hectometer
HPA	Hectoliter of pure alcohol
HTZ	Hertz
HUR	Hour
INH	Inch (25.4 mm)
INK	Square inch
INQ	Cubic inch
ITM	Item
JOU	Joule
KBA	Kilobar
KEL	Kelvin
KGM	Kilogram

Value	Description
KGS	Kilogram per second
KHZ	Kilohertz
KJO	Kilojoule
KMH	Kilometer per hour
KMK	Square kilometer
KMQ	Kilogram per cubic meter
KMT	Kilometer
KNI	Kilogram of nitrogen
KNS	Kilogram of named substance
KNT	Knot (1 nautical mile per hour)
KPA	Kilopascal
KPH	Kilogram of caustic potash (kilogram of potassium hydroxide)
KPO	Kilogram of potassium oxide
KPP	Kilogram of phosphoric anhydride (kilogram of phosphoric pentoxide)
KSD	Kilogram of substance 90% dry
KSH	Kilogram of caustic soda
KTN	Kilotonne
KUR	Kilogram of uranium
KVA	Kilovolt-ampere
KVR	Kilovar
KVT	Kilovolt
KWH	Kilowatt-hour
KWT	Kilowatt
LBR	Pound GB, US (0.45359237 kg)
LBS	Unknown unit of measure
LBT	Troy pound, US (373.242 g)
LEF	Leaf
LPA	Liter of pure alcohol
LTN	Long ton GB, US (1.0160469 T)
LTR	Liter (1 dm ³)

Value	Description
LUM	Lumen
LUX	Lux
MAL	Megaliter
MAM	Megameter
MAW	Megawatt
MBE	Thousand standard brick equivalent
MBF	Thousand board-feet (2.36 m ³)
MBR	Millibar
MCU	Millicurie
MGM	Milligram
MHZ	Megahertz
MIK	Square mile
MIL	Thousand
MIN	Minute
MIO	Million
MIU	Million international units
MLD	Billion US (milliard)
MLT	Milliliter
MMK	Square millimeter
MMQ	Cubic millimeter
MMT	Millimeter
MON	Month
MPA	Megapascal
MQH	Cubic meter per hour
MQS	Cubic meter per second
MSK	Meter per second squared
MTK	Square meter
MTQ	Cubic meter
MTR	Meter
MTS	Meter per second

Value	Description
MVA	Megavolt-ampere (1000 kva)
MWH	Megawatt-hour (1000 kWh)
NAR	Number of articles
NBB	Number of bobbins
NCL	Number of cells
NEW	Newton
NIU	Number of international units
NMB	Number
NMI	Nautical mile (1852 m)
NMP	Number of packs
NMR	Number of pairs
NPL	Number of parcels
NPT	Number of parts
NRL	Number of rolls
NTT	Net (register) ton
OHM	Ohm
ONZ	Ounce GB, US (28.349523 g)
OZA	Fluid ounce (29.5735 cm ³)
OZI	Fluid ounce (28.413 cm ³)
PAL	Pascal
PCB	Piece
PCE	Unknown unit of measure
PER	Unknown unit of measure
PGL	Proof gallon
PK	Unknown unit of measure
PTD	Dry pint (0.55061 dm ³)
PTI	Pint (0.568262 dm ³)
PTL	Liquid pint (0.473176 dm ³)
QAN	Quarter (of a year)
QTD	Dry quart (1.101221 dm ³)

Value	Description
QTI	Quart (1.136523 dm ³)
QTL	Liquid quart (0.946353 dm ³)
QTR	Quarter, GB (12.700586 kg)
RL	Unknown unit of measure
RM	Unknown unit of measure
RPM	Revolution per minute
RPS	Revolution per second
SAN	Half year (6 months)
SCO	Score
SCR	Scruple GB, US (1.295982 g)
SEC	Second
SET	Set
SHT	Shipping ton
SIE	Siemens
SMI	(Statute) mile (1609.344 m)
SST	Short Standard (7200 matches)
ST	Unknown unit of measure
STI	Stone GB (6.350293 kg)
STN	Short ton GB, US (0.90718474 T)
TAH	Thousand ampere-hour
TNE	Metric ton (1000 kg) (tonne (1000 kg))
TPR	Ten pairs
TQD	Thousand cubic meters per day
TRL	Trillion EUR
TSD	Tonne of substance 90% dry
TSH	Ton of steam per hour
VLT	Volt
WCD	Cord (3.63 m ³)
WEB	Weber
WEE	Week

Value	Description
WHR	Watt-hour
WSD	Standard
WTT	Watt
YDK	Square yard
YDQ	Cubic yard
YRD	Yard (0.9144 m)