



electronic payment exchange

Data Dictionary – Enhanced / Level II & III Data

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3/25/22	2.1	M. Billips	Complete revision to TLV format
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Introduction

About this guide

This guide provides detailed information surrounding TLV format, TLV tags, and Enhanced / Level II & III data. The ENHANCED_TLV tag will contain the enhanced / level III summary and line data elements.

It is important to note that the summary and line item sub tags indicated as optional and required are based on the card brand requirements as of the most recent document revision history date. It is possible for them to change these requirements based on their needs in the future.

Related documentation

Reference the respective *EPX Transaction Specs – Enhanced / Level II & III Data* for samples of transactions requests containing enhanced / level II & III data.

For additional information about request and response fields, refer to the *EPX Data Dictionary*.

TLV Format

TLV Overview

EPX requires Level III data to be presented in tag-length-value (TLV) format, which is a method of encoding information in a single string, versus multiple EPX tags.

The ENHANCED_TLV tag is used to supply Enhanced / Level III data with Sale (CCX1), Authorization Only (CCx2), and Capture Only (CCx4) transactions.

ENHANCED_TLV tag

Each transaction request with Enhanced / Level III data must contain the ENHANCED_TLV tag. This tag consists of the TLV set type, Enhanced / Level III summary data, and Enhanced / Level III line item data which are concatenated together where TLV set tags “002” and “003” will contain sub tags.

TLV format overview:

Tag + Length + Value

- The **Tag** element is a fixed 3 digit numeric value [000 – 999]
- The **Length** element is a fixed 4 digit numeric value [0001 – 9999]
- The **Value** element is a variable alphanumeric value with max length of 9999

TLV Set tag 001 “TLV Set Type”

- TLV set tag “001” is the TLV Set Type that defines the use of the entire data set, essentially to indicate the card brand and type of enhanced data. This tag is required and must be the first tag in the TLV string.

TLV Set tag 002 “Summary Data”

- TLV set tag “002” is the Level III Summary Data.

TLV Set tag 003 “Line Item Data”

- TLV set tag “003” is the Level III Line Item Data.

The following example is a Visa transactions containing general level III data with the ENHANCED_TLV tag consisting of TLV set tags - TLV Set Type “001”, Summary Data “002”, and Line Item Data “003” along with the respective sub tags.

Example Visa G ENHANCED_TLV tag

```
ENHANCED_TLV = "0010006VISA_G00200470010016CUSTOMER REF
NUM00500040.00011000603072200301100010010ITEM QUANT0020016ITEM
DESCRIPTION0030012PRODUCT CODE004000120050012UNIT
MEASURE006000512.25010000524.50"
```

The table that follows breaks down the data string from the Visa General ENHANCED_TLV example above.

TLV tag	Plaintext value	TLV representation
"TLV Set Type - 001" TLV Set		
Data String "0010006VISA_G"		
001 (TLV set tag "001" is required)	VISA_G	0010006VISA_G
"Summary Data - 002" TLV set		
Data String "00200470010016CUSTOMER REF NUM00500040.000110006030722"		
002 (TLV set tag "002" is required)		0020047 (0047 represents the entire string length of TLV set "002")
001 (sub tag)	CUSTOMER REF NUM	0010016CUSTOMER REF NUM
005 (sub tag)	0.00	00500040.00
011 (sub tag)	030722	0110006030722
"Line Item Data - 003" TLV set		
Data String "00301100010010ITEM QUANT0020016ITEM DESCRIPTION0030012PRODUCT CODE004000120050012UNIT MEASURE006000512.25010000524.50"		
003 (TLV set tag "003" is required)		0030110 (0110 represents the entire string length of TLV set "003")
001 (sub tag)	ITEM QUANT	0010010ITEM QUANT
002 (sub tag)	ITEM DESCRIPTION	0020016ITEM DESCRIPTION
003 (sub tag)	PRODUCT CODE	0030012PRODUCT CODE
004 (sub tag)	2	00400012

TLV tag	Plaintext value	TLV representation
005 (sub tag)	UNIT MEASURE	0050012UNIT MEASURE
006 (sub tag)	12.25	006000512.25
010 (sub tag)	24.50	010000524.50

Enhanced / Level II & III Processing Data

Enhanced / Level II & III processing requires specific data to be supplied with the transaction requests. The following sections outline the tags and data sets required for Enhanced / Level II & III processing for each card brand. The tables contain relevant information surrounding the format and program requirements of the Enhanced TLV Data tables.

Level II

Level II does not require the ENHANCED_TLV tag. The requirements can be met by supplying the TAX_AMT and TAX_EXEMPT API tags along with any following:

- INVOICE_NBR
- ORDER_NBR
- REFERENCE_NBR

NOTE: EPX will use the first item of the list above that is populated. If none of the above are provided, EPX will populate REFERENCE_NBR with the BRIC value for the item.

Although the ENHANCED_TLV tag is not mandatory to meet level II requirements, it can be supplied with the transaction requests for the summary and line item data to be displayed on the cardholder statement.

Format Values

The following table provides details on the supported character sets for ENHANCED_TLV data.

Variable Type	Definition	Supported Characters
AU	Alpha upper case	A-Z
DO	Decimal Optional	.
DR	Decimal Required	.
N	Numeric	0-9
S1	Special 1	space , '-'
S5	Special 5	space

Variable Type	Definition	Supported Characters
S6	Special 6	space , -
S7	Special 7	-
YN	Yes / No	Y or N

Visa Business & Corporate Cards - General

The following section and tables provide specific details applicable to Visa ENHANCED_TLV enhanced / level III general processing tags.

The TAX_AMT and TAX_EXEMPT API tags are required to be supplied via API calls, and are not part of the ENHANCED_TLV.

Visa General TLV Set Type – TLV Set Tag 001 “VISA_G”

The TLV Set Type “001” tag defines the use of the entire data set. TLV Set Type is required and must be provided as the first tag in the data provided in API tag ENHANCED_TLV. Only valid TLV Set Type values will be accepted. A value of “VISA_G” is required for Visa general enhanced / level III data. There are not any sub tags for the Visa TLV Set Type tag “001”.

Visa General – TLV Set “001” TLV Set Type

TLV Set Tag	TLV Data	Variable Type	Max Length	Requirement
001	Always use fixed value “VISA_G”	alpha upper case with underscore	6	mandatory

Visa General Summary Data – TLV Set Tag 002

The Summary Data TLV Set tag “002” is considered mandatory only if summary data sub tags are included with the TLV string, else considered optional and can be omitted from the TLV ENHANCED_TLV string. The TLV tags are used to represent enhanced / level III summary data. Only one summary data TLV set tag is allowed in the ENHANCED_TLV string. If multiple summary data tags are present, only the first found in the TLV string will be used and the additional TLV sets will be ignored. All summary sub tags must be valid and the set must meet the minimum requirements.

Although the Summary Data TLV Set tag “002” is not required to meet level III requirements, it can be included with the ENHANCED_TLV string for the data to be displayed on the cardholder statement.

Visa General – TLV Set “002” Summary Data

TLV Set Tag	TLV Data	Variable Type	Max Length	Requirement
002	4 digit numeric value to indicate the entire string length of TLV set “002”	N	4	conditional

Visa General – TLV Set “002” Summary Data Sub Tags

TLV Set “002” Sub Tags	TLV Data	Variable Type	Format Requirement	Max Length	Requirement
001	Customer Code	AU , N , S1		17	optional
004	Discount Amount	N , DR	n.nn	13	optional
005	Freight/Shipping Amount	N , DR	n.nn	13	optional
006	Duty Amount	N , DR	n.nn	13	optional
007	Destination Postal/Zip Code	AU , N , S5 , S7		10	optional
008	Ship From Postal/Zip Code	AU , N , S5 , S7		10	optional
009	Destination Country Code	AU , N		3	optional
010	VAT Invoice Reference Number	AU , N , S6		15	optional
011	Order Date	N 6	MMDDYY	6	optional
012	VAT/Tax Amount (Freight/Shipping)	N , DR	n.nn	13	optional
013	VAT/Tax Rate (Freight/Shipping)	N , DR	n.nn	5	optional

Visa General Line Item Data – TLV Set Tag 003

The Line Item Data TLV Set tag “003” is required to be present in the TLV string. The TLV tags are used to represent enhanced / level III line item data. Multiple line item data TLV set tags are

allowed in the ENHANCED_TLV string. Only valid line item data set tags will be used if all line item data sub tags are valid and meet the minimum requirements.

Visa General – TLV Set “003” Line Item Data

TLV Set Tag	TLV Data	Variable Type	Max Length	Requirement
003	4 digit numeric value to indicate the entire string length of TLV set “003”	N	4	mandatory

Visa General – TLV Set “003” Line Item Data Sub Tags

TLV Set “003” Sub Tags	TLV Data	Variable Type	Format Requirement	Max Length	Requirement
001	Item Commodity Code	AU , N , S1		12	mandatory
002	Item Description	AU , N , S1		26	mandatory
003	Product Code	AU , N , S1		12	mandatory
004	Quantity	N , DO	n (decimal not required) n.n n.nn n.nnn n.nnnn	12	mandatory
005	Unit Of Measure	AU , N		13	mandatory
006	Unit Cost	N , DR	n.nn n.nnn n.nnnn	13	mandatory
007	VAT/Tax Amount	N , DR	n.nn	13	optional
008	VAT/Tax Rate	N , DR	n.nn	13	optional
009	Discount per line Item	N , DR	n.nn	13	optional
010	Line Item Total	N , DR	n.nn	13	mandatory

MasterCard Business & Corporate Cards - General

The following section and tables provide specific details applicable to MasterCard ENHANCED_TLV enhanced / level III general processing tags.

The TAX_AMT and TAX_EXEMPT API tags are required to be supplied via API calls, and are not part of the ENHANCED_TLV.

MasterCard General TLV Set Type – TLV Set Tag 001 “MC_G”

The TLV Set Type “001” tag defines the use of the entire data set. TLV Set Type is required and must be provided as the first tag in the data provided in API tag ENHANCED_TLV. Only valid TLV Set Type values will be accepted. A value of “MC_G” is required for MasterCard general enhanced / level III data. There are not any sub tags for the MasterCard TLV Set Type tag “001”.

MasterCard General – TLV Set “001” TLV Set Type

TLV Set Tag	TLV Data	Variable Type	Max Length	Requirement
001	Always use fixed value “MC_G”	alpha upper case with underscore	4	mandatory

MasterCard General Summary Data – TLV Set Tag 002

The Summary Data TLV Set tag “002” is required to be present in the TLV string. The TLV tags are used to represent enhanced / level III line item data. Only one summary data TLV set tag is allowed in the ENHANCED_TLV string. If multiple summary data tags are present, only the first found in the TLV string will be used and the additional TLV sets will be ignored. All summary sub tags must be valid and the set must meet the minimum requirements.

MasterCard General – TLV Set “002” Summary Data

TLV Set Tag	TLV Data	Variable Type	Max Length	Requirement
002	4 digit numeric value to indicate the entire string length of TLV set “002”	N	4	mandatory

MasterCard General – TLV Set “002” Summary Data Sub Tags

TLV Set “002” Sub Tags	TLV Data	Variable Type	Format Requirement	Max Length	Requirement
001	Customer Code	AU , N , S1		25	mandatory

MasterCard General Line Item Data – TLV Set Tag 003

The Line Item Data TLV Set tag “003” is required to be present in the TLV string. The TLV tags are used to represent enhanced / level III line item data. Multiple line item data TLV set tags are allowed in the ENHANCED_TLV string. Only valid line item data set tags will be used if all line item data sub tags are valid and meet the minimum requirements.

MasterCard General – TLV Set “003” Line Item Data

TLV Set Tag	TLV Data	Variable Type	Max Length	Requirement
003	4 digit numeric value to indicate the entire string length of TLV set “003”	N	4	mandatory

MasterCard General – TLV Set “003” Line Item Data Sub Tags

TLV Set “003” Sub Tags	TLV Data	Variable Type	Format Requirement	Max Length	Requirement
001	Product Code	AU , N , S6		15	mandatory
002	Item Description	AU , N , S1		35	mandatory
003	Item Quantity	N , DO	n (decimal not required) n.n n.nn n.nnn n.nnnn	12	mandatory
004	Item Unit Of Measure	AU , N		3	mandatory
005	Extended Item Amount	N , DR	n.nn	13	mandatory
007	Purchase Order	AU , N , S1		17	optional

Discover Enhanced Data - General

The following section and tables provide specific details applicable to Discover Enhanced Data General processing tags. Although Discover does not currently offer a program for level III processing, the enhanced data can be supplied with the transaction requests for the summary and line item data to be displayed on the cardholder statement.

The TAX_AMT and TAX_EXEMPT API tags are required to be supplied via API calls, and are not part of the ENHANCED_TLV.

Discover General TLV Set Type – TLV Set Tag 001 “DISC_G”

The TLV Set Type “001” tag defines the use of the entire data set. The TLV Set Type is required and must be provided as the first tag of the data provided in API tag ENHANCED_TLV. Only valid TLV Set Type values will be accepted. A value of “DISC_G” is required for Discover general enhanced data. There are not any sub tags for the Discover TLV Set Type tag “001”.

Discover General – TLV Set “001” TLV Set Type

TLV Set Tag	TLV Data	Variable Type	Max Length	Requirement
001	Always use fixed value “DISC_G”	alpha upper case with underscore	6	mandatory

Discover General Summary Data – TLV Set Tag 002

The Summary Data TLV Set tag “002” is considered mandatory only if summary data sub tags are included with the TLV string, else considered optional and can be omitted from the TLV ENHANCED_TLV string. The TLV tags are used to represent enhanced summary data. Only one summary data TLV set tag is allowed in the ENHANCED_TLV string. If multiple summary data tags are present, only the first found in the TLV string will be used and the additional TLV sets will be ignored. All summary sub tags must be valid and the set must meet the minimum requirements.

Discover General – TLV Set “002” Summary Data

TLV Set Tag	TLV Data	Variable Type	Max Length	Requirement
002	4 digit numeric value to indicate the entire string length of TLV set “002”	N	4	conditional

Discover General – TLV Set “002” Summary Data Sub Tags

TLV Set “002” Sub Tags	TLV Data	Variable Type	Format Requirement	Max Length	Requirement
004	Sales Tax Indicator	YN	Y or N	1	optional
005	Alternate Tax Amount	N , DR	n.nn	12	optional
006	Tax Rate Applied	N , DR	n.nn	6	optional
007	Ship to Postal Code	AU , N , S5 , S7		10	optional
008	Ship From Postal Code	AU , N , S5 , S7		10	optional

Discover General Line Item Data – TLV Set Tag 003

The Line Item Data TLV Set tag “003” is considered mandatory only if summary data sub tags are included with the TLV string, else considered optional and can be omitted from the TLV ENHANCED_TLV string. The TLV tags are used to represent enhanced line item data. Multiple line item data TLV set tags are allowed in the ENHANCED_TLV string. Only valid line item data set tags will be used if all line item data sub tags are valid and meet the minimum requirements.

Discover General – TLV Set “003” Line Item Data

TLV Set Tag	TLV Data	Variable Type	Max Length	Requirement
003	4 digit numeric value to indicate the entire string length of TLV set “003”	N	4	conditional

Discover General – TLV Set “003” Line Item Data Sub Tags

TLV Set “003” Sub Tags	TLV Data	Variable Type	Format Requirement	Max Length	Requirement
001	Dept/Category Code	AU , N , S1		8	optional
002	Item description	AU , N , S1		35	optional

TLV Set "003" Sub Tags	TLV Data	Variable Type	Format Requirement	Max Length	Requirement
003	Product Code	AU , N , S1		20	optional
004	Item Quantity	N		5	optional
005	Item Unit of Measure	AU , N		3	optional
006	Item Amount	N , DR	n.nn	12	optional
009	Discount Amount	N , DR	n.nn	12	optional
011	Promotional Code	AU , N , S1		6	optional
012	Promotional Start Date	N 8	MMDDYYYY	8	optional
013	Promotional End Date	N 8	MMDDYYYY	8	optional

American Express Enhanced Data

The following section and tables provide specific details applicable to American Express Enhanced Data General processing tags. Although American Express does not currently offer a program for level III processing, enhanced data can be supplied with the transaction requests for the summary and line item data to be displayed on the cardholder statement.

The TAX_AMT and TAX_EXEMPT API tags are required to be supplied via API calls, and are not part of the ENHANCED_TLV.

American Express TLV Set Type – TLV Set Tag 001 “AMEX_A20”

The TLV Set Type “001” tag defines the use of the entire data set. The TLV Set Type is required and must be provided as the first tag of the data provided in API tag ENHANCED_TLV. Only valid TLV Set Type values will be accepted. A value of “AMEX_A20” is required for American Express enhanced data. There are not any sub tags for the American Express TLV Set Type tag “001”.

American Express – TLV Set “001” TLV Set Type

TLV Set Tag	TLV Data	Variable Type	Max Length	Requirement
001	Always use fixed value “AMEX_A20”	alpha upper case with underscore	8	mandatory

American Express Summary Data – TLV Set Tag 002

The Summary Data TLV Set tag “002” is considered mandatory only if summary data sub tags are included with the TLV string, else considered optional and can be omitted from the TLV ENHANCED_TLV string. These TLV tags are used to represent enhanced summary data. Only one summary data TLV set tag is allowed in the ENHANCED_TLV string. If multiple summary data tags are present, only the first found in the TLV string will be used and the additional TLV sets will be ignored. All summary sub tags must be valid and the set must meet the minimum requirements.

American Express – TLV Set “002” Summary Data

TLV Set Tag	TLV Data	Variable Type	Max Length	Requirement
002	4 digit numeric value to indicate the entire string length of TLV set “002”	N	4	conditional

American Express – TLV Set “002” Summary Data Sub Tags

TLV Set “002” Sub Tags	TLV Data	Variable Type	Format Requirement	Max Length	Requirement
001	Department Name	AU , N , S1		40	optional

American Express Line Item Data – TLV Set Tag 003

The Line Item Data TLV Set tag “003” is considered mandatory only if summary data sub tags are included with the TLV string, else considered optional and can be omitted from the TLV ENHANCED_TLV string. These TLV tags are used to represent enhanced line item data. Multiple line item data TLV set tags are allowed in the ENHANCED_TLV string. Only valid line item data set tags will be used if all line item data sub tags are valid and meet the minimum requirements.

American Express – TLV Set “003” Line Item Data

TLV Set Tag	TLV Data	Variable Type	Max Length	Requirement
003	4 digit numeric value to indicate the entire string length of TLV set “003”	N	4	conditional

American Express – TLV Set “003” Line Item Data Sub Tags

TLV Set “003” Sub Tags	TLV Data	Variable Type	Format Requirement	Max Length	Requirement
001	Item Description	AU , N , S1		19	optional
002	Item Quantity	N		3	optional
003	Item Amount	N , DR	n.nn	13	optional