

# **Europay, MasterCard, and Visa (EMV) Receipts v1.0**

Sage Exchange Desktop v2.x

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# Europay, MasterCard, Visa (EMV) receipt information

The following table outlines EMV specific information that must be printed on all EMV transaction receipts. The information shown must be present and may be printed in any order.

**Note:** Tags are communicated (and printed) in hexadecimal values.

Field	Description	Value
Application Preferred Name	The chip card application name used to process the EMV transaction.	TAG 9F12 If TAG 9F11 value is not "01" then print TAG 50 instead.  <b>Note:</b> This tag is not provided in ASCII but in hexadecimal format, since it may contain non-alpha numerical characters (for example, Japanese, Greek, etc.). Integrator should translate hexadecimal to characters.
PAN	PAN must be masked, truncate any trailing hex 'F'	TAG 5A Transaction.CardLast4
Card Entry Mode	How the card information was obtained	Chip Contactless Fallback Swipe Manual Swiped  Transaction.EntryMode
Amount	If there is no Cashback or Tip then print just the Amount with "USD\$"  If there is Cashback or Tip then the Amount must be the base and a Total Amount line must be printed	If no Tip or Cashback use TAG 9F02 Transaction.Amount Or (Transaction.Amount – Transaction.TipAmount – Transaction.CashbackAmount)

Field	Description	Value												
Total Amount	Optional, if there is Cashback or Tip then the Total Amount line must be printed else do not print and use the Amount Line	TAG 9F02 Transaction.Amount												
Cardholder Verification Method <i>See comments in next section</i>	The cardholder verification method (CVM)	TAG 9F34 “PIN VERIFIED” “SIGN” “NONE”												
EMV Tag	Some EMV Tags values must be printed on the receipt and be identified using either the TAG ID or Name in the order shown below. <table><tr><th>TAG ID</th><th>Name</th></tr><tr><td>4F</td><td>AID</td></tr><tr><td>95</td><td>TVR</td></tr><tr><td>9F10</td><td>IAD</td></tr><tr><td>9B</td><td>TSI</td></tr><tr><td>8A</td><td>ARC</td></tr></table>	TAG ID	Name	4F	AID	95	TVR	9F10	IAD	9B	TSI	8A	ARC	N/A
TAG ID	Name													
4F	AID													
95	TVR													
9F10	IAD													
9B	TSI													
8A	ARC													
Signature Line <i>See comments in next section</i>	A signature line is required on receipts when the CVM is “Signature” or “Combined Offline PIN [enciphered and plain text] + Signature.” When the CVM was NOCVM, the signature line should not be printed.	N/A												
Transaction Type	N/A	“PURCHASE” “REFUND”												
Copy Indicator	N/A	“CUSTOMER COPY” “MERCHANT COPY”												
Transaction Code	The approval or declined code	Transaction.Code												
Transaction Status	The status of the transaction	Transaction.Status												
Date	The date of the transaction MM/DD/YYYY	Transaction.DateTime												

Field	Description	Value
Time	The time of the transaction HH:MM	Transaction.DateTime
Cashback Amount	Optional cashback amount	Transaction.CashbackAmount
Tip Amount	Optional tip amount	Transaction.TipAmount
Merchant Name	The name of the business	N/A
Address Line 1	The address line 1 of the business	N/A
Address Line 2	Optional the address line 2 of the business	N/A
Address Line 3	Optional the address line 3 of the business	N/A
Customer Service Number	Customer service phone number	N/A

Merchant and customer receipts should contain the same data with the exception of the Merchant/Customer copy indicator.

# Comments w.r.t. Card Holder Verification method on receipt

We should distinguish:

- The CVM Results *as they are coded within EMV tag 9F34* (3 bytes, represented by 3 \* 2 hexadecimal digits)
- The text string representing the CVM *as it is printed on the receipt* (PIN VERIFIED / SIGN / NONE), depending on the value of tag 9F34
- The signature line, *which may or may not have to be printed*, depending on the value of tag 9F34. Note that whether or not the signature line has to be printed does not correspond 1:1 to whether the value of the aforementioned text string is SIGN (this will be explained below).

Tag 9F34 offers more granular information than the text string that is printed on the receipt. In other words: > 3 possible values for tag 9F34 are mapped onto only 3 possible text strings to be printed on the receipt. Based on the value of tag 9F34, it is up to the integrator to translate this to one of the three mentioned text strings.

As per EMV Specifications, byte 1 of Tag 9F34 is coded as per below.

**Table 65 Cardholder Verification Method Results (Tag 9F34) – Byte 1**

b8	b7	b6	b5	b4	b3	b2	b1	Meaning
0								Reserved for future use
	0							Fail cardholder verification if CVM unsuccessful
	1							Apply succeeding CVR if CVM unsuccessful
		0	0	0	0	0	0	Fail CVM processing
		0	0	0	0	0	1	Plain text PIN verification performed by ICC
		0	0	0	0	1	0	Enciphered PIN verified online
		0	0	0	0	1	1	Plain text PIN verification performed by ICC and signature (paper)
		0	0	0	1	0	0	Enciphered PIN verification performed by ICC
		0	0	0	1	0	1	Enciphered PIN verification performed by ICC and signature (paper)
		0	x	x	x	x	x	Reserved for future use by the EMV specification. Range 000110-011101
		0	1	1	1	1	0	Signature (paper)
		0	1	1	1	1	1	No CVM required
		1	0	x	x	x	x	Reserved for future use by the EMV specification. Range 100000-101111
		1	1	x	x	x	x	Reserved for future use by the EMV specification. Range 110000-111110
		1	1	1	1	1	1	This value is not available for use

The image shows that several CVM codes are associated with the PIN having been verified in some way (see highlighted in the screen shot above), but on the receipt they are all to be represented as "PIN VERIFIED". On the other hand, there is only one value of the CVM Results code that will map to the string "SIGN".

As specified in the previous section, a signature line should be printed when the CVM value corresponds to "Signature" or "Combined offline PIN [enciphered and plain text] + Signature". So, also when the CVM value corresponds to the 3rd and the 5th line of the highlighted 5 lines above (in which cases the text string would be PIN VERIFIED), a signature line has to be printed.



## Receipt example

<Merchant Name>	
<Address Line 1>	
<Address Line 2>	
<Address Line 3>	
<Customer Service Number>	
<Date>	<Time>
<Transaction Type>	
<Application Name>	<PAN>
Entry Mode:	<Entry Mode>
CVM:	<Cardholder Verification Method>
Amount	USD\$ <Amount>
Cashback:	<Cashback Amount>
Tip:	<Tip Amount>
Total:	<Total Amount>
Response:	<Transaction Status>
Auth Code:	<Transaction Code>
EMV Details:	
AID: <4F>	
TVR: <95>	
IAD: <9F10>	
TSI: <9B>	
ARC: <8A>	
X_____	
Cardholder Signature	
<Copy Indicator>	

\*Items in yellow are only displayed based on specific result conditions.

## Offline declined EMV transaction receipt information

**Note:** Regardless of whether the terminal/POS have been configured to always go online for authorization, the transaction may always be locally declined by either card or terminal (before going online for authorization, or even after the Host has given authorization!).

The ResponseIndicator in the PaymentResponseType returned by SED can be “Approved”, “Declined” and “Error”. However, more granular information can be found in Tag 8A. Possible values for this tag are:

- 00 – (0x3030) Online approved
- 01 – (0x3031) Referral
- 05 – (0x3035) Online declined
- Y1 – (0x5931) Offline Approved
- Z1 – (0x5A31) Offline declined
- Y3 – (0x5933) Unable to go online (offline approved)
- Z3 – (0x5A33) Unable to go online (offline declined)

So in case the value of Tag 8A is “Z1” or “Z3”, then the transaction was offline declined and the following tags must be printed:

Receipt Text	Tag Number	Description	Comment
Tag 50	50	Application Label	N/A
Tag 5A	5A	Application PAN	Truncate trailing „F” (if any) and mask
Tag 5F2A	5F2A	Transaction Currency Code	N/A
Tag 5F34	5F34	PAN Sequence Number	Blank if not present
Tag 82	82	Application Interchange Profile	N/A
Tag 95	95	Terminal Verification Results	N/A
Tag 9A	9A	Transaction Date	N/A
Tag 9C	9C	Transaction Time	N/A
Tag 9F02	9F02	Amount Authorized	Printed with decimal point
Tag 9F03	9F03	Other Amount	Printed with decimal point
Tag 9F07	9F07	Application Usage Control	N/A

Receipt Text	Tag Number	Description	Comment
Tag 9F0D	9F0D	Issuer Action Code – Default	N/A
Tag 9F0E	9F0E	Issuer Action Code – Denial	N/A
Tag 9F0F	9F0F	Issuer Action Code – Online	N/A
Tag 9F10	9F10	Issuer Application Data	Variable length (up to 32 characters)
Tag 9F12	9F12	Application Preferred Name	Blank if in unprintable format
Tag 9F1A	9F1A	Terminal Country Code	N/A
Tag 9F26	9F26	Application Cryptogram	N/A
Tag 9F27	9F27	Cryptogram Information Data	N/A
Tag 9F34	9F34	CVM Results	N/A
Tag 9F36	9F36	Application Transaction Data	N/A
Tag 9F37	9F37	Unpredictable Number	N/A
TAC Default	N/A	Terminal Action Code – Default	N/A
TAC Denial	N/A	Terminal Action Code – Denial	N/A
TAC Online	N/A	Terminal Action Code – Online	N/A