SHIFT④™

API Specifications

Credorax Bank Card Present

Version 2.9 rev 5 | November 2023

Contents

Introduction

This document provides the API specifications for processing card-present (POS) payments on Finaro Payments Platform. You may need additional documents to complete your development, mainly the Shift4 Payment API.

You can find all the Finaro API documentation on **epower.credorax.com**

Card Present Operations

Card present data is supported for the following operation codes:

[1] – Sale

[2] – Authorisation

[3] – Capture

[4] – Authorisation Void

[5] – Referral Credit

[6] - Independent Credit

[7] – Sale Void

[8] – Refund Void

[9] – Capture Void

- Fallback is supported (if ICC data cannot be read, magnetic stripe data can be used instead).
- Referral captures are supported by the use of [g] referral parameters. Please refer to the Shift4 Payments API specification document for additional information.
- Offline transactions are supported by the use of [b] parameters with operation code [3].

Card Present Fields

This section describes only the fields which are specifically required for card present transaction processing. For a full list of API fields used in the Shift4 gateway, please refer to the Shit4 Payments API specification document.

Name	Type	Min	Max	Description
a2	[1-9]	1	1	Payment source type For card present, should be sent as: 8 Mobile device (mPOS) 6 UCAT Terminal 10 POS terminal

Name	Type	Min	Max	Description
b6	[0-9]	0	3	Card sequence number A number used to differentiate between cards that have the same card number. Mandatory in all transactions where chip-card is present and the chip card contains a Card Sequence Number, otherwise optional in requests. When mandatory, b6 must contain the Application PAN Sequence number (EMV tag 5F34) if present on the ICC. Otherwise it should be taken from the Track 2-equivalent Data (EMV tag 57), if present.
b7	[0-9=D]	10	37	Track 2 data The data must be stripped of start and end sentinels and have no parity, but must otherwise remain unaltered. Note that the track 2 data must contain characters from the set 0-9, = and D. Any other characters are considered illegal.
b8	text	76	76	Track 1 data The data must be stripped of start and end sentinels and have no parity, but must otherwise remain unaltered (Mandatory if the Card Entry Mode = '80' and if Track 2 data cannot be read)
b9	[0-9]	2	2	Card entry mode: '05' PAN auto-entry via integrated circuit card (ICC) '07' PAN auto-entry via contactless M/Chip '91' PAN auto-entry via contactless magnetic stripe '95' Card Data was chip read and data is potentially unreliable '80' PAN auto-entry via magnetic stripe. The full track data has been read and transmitted in Track 1 Data or in Track 2 Data without alteration or truncation. This mode is used as fall back to PAN auto- entry via ICC when the chip card could not be read. Only valid for MasterCard and Maestro transactions. '90' PAN auto-entry via magnetic stripe – the FULL track data has been read from the magnetic stripe and transmitted in Track 2 Data (BM 035). Valid for VISA, MasterCard and Maestro transactions

Name	Type	Min	Max	Description
b10	[0-9]	1	1	PIN entry capability: '0' Unspecified or unknown '1' Terminal has PIN entry capability '2' Terminal does not have PIN entry capability '8' Terminal has PIN entry capability but PIN pad is not currently operative
b11	[0-9]	1	8	Transaction sequence counter A counter maintained by the terminal that is incremented by one for each transaction. (Must be supplied if the terminal has the capability to generate it)
b12	text	1	256	Unique terminal ID (IMEI/hardware based - Must be supplied if the terminal has the capability to get/retrieve it)* details will be provided later.
b13	text	-	-	Cardholder signature image HEX-encoded cardholder signature in original JPEG format (collected for magnetic stripe fallback transactions or as part of CVM) (up to 60 Kb)
b14	[0-9\.]	15	15	GPS latitude Decimal format N(8,6)
b15	[0-9\.]	15	15	GPS longitude Decimal format N(8,6)
b16	text	-	-	Cardholder photo HEX-encoded cardholder photo in original JPEG format (up to 60 Kb)
b17	text	1	8	Card acceptor terminal ID Identifies a terminal, unique to an acquirer. Must be sent in all card present transactions including referrals (in referral transaction, this field should indicate the terminal ID of the original transaction)

Name	Type	Min	Max	Description
b18	0-9	1	1	Offline Pin Indicator (where the pin is approved offline) 0 - Approved 1 - Not approved Note: b52and b53 must not be sent if the b18 value is sent
b19	Text	1	2	Ucat Terminal Indicator 1 - UCAT with PIN 2 - UCAT self service 3 - UCAT limited amount
b52	Hex	16	16	Encrypted PIN Block.
b53	Hex	6	6	ZPK Key Index Value is provided by Shift4 during setup
b55	text	150	999	ICC Data Required if Card Entry Mode is 05, 07 or 95. See ICC Data (b55 subfields) for more details

Required Fields

Each of the following tables describes available API parameters and details whether the field is mandatory (m), conditional (c), optional (o), or not used (-):

Name	Description	Standalone Operations [1] [2] [3] [4] [5] [6] [7] [8] [9]
a2	Payment source type	c (not required for 3,4,5,6,7,8,9)
b6	Card sequence number	c
b7	Track 2 data	c
b8	Track 1 data	c
b9	Card entry mode	M (not required for 3,4,7,8,9)
b10	PIN entry capability	M (not required for 3,4,7,8,9)
b11	Transaction sequence counter	c
b12	Unique terminal ID	c
b13	Cardholder signature image	c

Name	Description	Standalone Operations [1] [2] [3] [4] [5] [6] [7] [8] [9]
b14	GPS latitude	o
b15	GBP longitude	o
b16	Cardholder photo	o
b17	Card acceptor terminal ID	m
b18	Offline Pin indicator	c
b19	Ucat Terminal Indicator	c
b52	Encrypted PIN Block	c
b53	ZMK KEY INDEX	c
b55	ICC data	c

ICC Data (b55 subfields)

All data within the b55 field is in the 'EMV TLV' format. Multiple Tags are sent, within the request and/or response with no space or separator. Each Tag should be sent with the format:

[Tag ID][Length][Value]

The Tag ID per the table below, can be one or two bytes (e.g. 91 or 5F2A)

The Length of the Value in hexadecimal notation, can be one byte (e.g. 0A or 02)

The Value contains the actual hex-encoded request/response value per the Tag description.

Example Tag 91: 910A0102030405060708090A

Example full b55 request field:
82027C00950580400400009A031304249C01005F2A0209789F02060000000010009F100706010A03A0A8109F1A0204709F26085D5380576508A3189F2701809F33036040209F34030102039F360203C89F3704BE83C700

Tag ID	Max	Required	Description
71	255	Response	Issuer script template 1
72	255	Response	Issuer script template 2
82	2	Mandatory	Application interchange profile
84	16	Optional	Dedicated file name
8A	2	Response	Authorisation response code
91	16	Response	Issuer authentication data
95	5	Mandatory	Terminal verification results Should be filled with zeroes in the case of [b9] (Card entry mode) = '07'
9A	3	Mandatory	Transaction date (YYMMDD)
9C	1	Mandatory	Transaction type
5F2A	2	Mandatory	Transaction currency code
9F02	6	Mandatory	Amount authorised
9F03	6	Optional	Cash-back amount
9F09	2	Optional	Terminal application version number
9F10	32	Conditional	Issuer application data (Mandatory if provided by the card to the terminal)
9F1A	2	Mandatory	Terminal country code
9F1E	16	Optional	Interface device serial number

Tag ID	Max	Required	Description
9F26	8	Conditional	Application cryptogram Authorisation request cryptogram (ARQC) should be sent for operations [1] or [2] The authorisation response cryptogram (ARPC) is returned in the response The transaction certificate (TC) should be sent for operation [3]
9F27	1	Conditional	Cryptogram information data (Mandatory for MasterCard, Optional for VISA)
9F33	3	Optional	Terminal capabilities
9F34	3	Conditional	Cardholder verification method results (Mandatory for MasterCard, Optional for VISA)
9F35	1	Optional	EMV terminal type
9F36	2	Mandatory	Application transaction counter
9F37	4	Mandatory	Unpredictable number
9F53	1	Optional	Transaction category code (MasterCard)
9F5B	20	Response	Issuer script result (VISA)
9F6E	32	Conditional	Device type field Value

The merchant is responsible for sending TAGS within the ICC Data. TAGS are only those supported by the appropriate ISO standard.

Card present SCA requirements

Shift4 supports the requirements for **Strong Customer Authentication** (SCA).

The solution for card present transactions to comply with SCA requirements is to request that customers enter their online PIN using an EMV Chip & PIN device.

In order to support these requirements, implement the following fields.

Request parameters

Name	Type	Min, Max	Required	Description
s2	Numeric	1,1	mandatory	Indicates whether the terminal supports single tap PIN entry. Possible values: '1' – The terminal supports online PIN entry '0' – The terminal does not support online PIN entry
s3	Numeric	1,1	Conditional	If the issuer requested online PIN verification, this should be the second transaction response to the issuer's "online PIN Request". Possible value: '1' - Transaction contains online PIN verification

Response parameters

Name	Type	Min, Max	Required	Description
s4	Numeric	1,1	Conditional	Issuer requests online PIN verification. Possible value: '1' - Issuer requests a PIN in Single Tap mode

When a standard response code 1A is received, make sure your terminal performs the following:

- Displays a clear message informing the cardholder that the contactless transaction is declined and that they are required to perform a contact transaction.

  For this second transaction, the terminal must be configured to support the normal CVM options for the product and must not be configured to only support "No CVM."

Change History

Version	Subject, Date	Description
2.9 rev 5	September 2022	Changed the b14, b15, b16 parameter from conditional to optional Change a2 parameter to conditional
2.9 rev 4	December 2021	Edited the note of the b18 parameter Changed the 9F33 tag from conditional to optional
2.9 rev 3	April 2021	Corrected the length of parameter b53 from 4 to 6
2.9 rev 2	Card Present SCA requirements, September 2019	Text revisions
2.9	Card Present SCA requirements, August 2019	Added support for Card Present SCA
2.8	Errata, June 2019	Added Tag 9F6E
2.7	Errata	Updated b53 definition.
2.6	Various updates, April 2016	Added UCAT terminal to a2 and b19 field Added b18 offline pin indicator Minor updates and changes b17: must be sent in all card present transactions including referrals
2.5	Errata	Updated b9 parameter specifications Minor updates and corrections
2.4	Errata	Updated b7 parameter specifications Minor updates and corrections
2.3	Errata	Updated a2 and b10 parameter specifications Minor updates and corrections
2.0	Online PIN	Added support for Online PIN
1.0	First release	Release of card present addendum

Need Support?

Contact our 24/7 Client Relations Center for any additional information or technical issue:

US: +1.617.715.1977

UK: +44.20.3608.1288

EU: +356.2778.0876

Email: **support.europe@shift4.com**