SHIFT4

API Specifications

Dynamic Currency Conversion

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Introduction

Dynamic Currency Conversion (DCC) allows merchants to offer cardholders the option to pay in the cardholder currency instead of the merchant currency. This functionality is supported by both card present and card-not-present payments.

When the cardholder presents a card during checkout, the merchant first sends a DCC Rate Lookup request to Shift4. If DCC is supported for the merchant account and the card, Shift4 returns a DCC offer that includes the converted amount, the exchange rate, the markup and other DCC related information, and the cardholder can choose which currency they want to use for the specific transaction.

This document describes the API specification for implementing the Shift4 DCC service as part of your payments flow.

Supporting Documents

To process DCC you will need to implement the Shift4 Payments Platform API. Depending on your payment use cases (card present or card-not-present) you may need additional documents to support this implementation. The following documents may be useful to understand the full requirements for payments processing with Shift4:

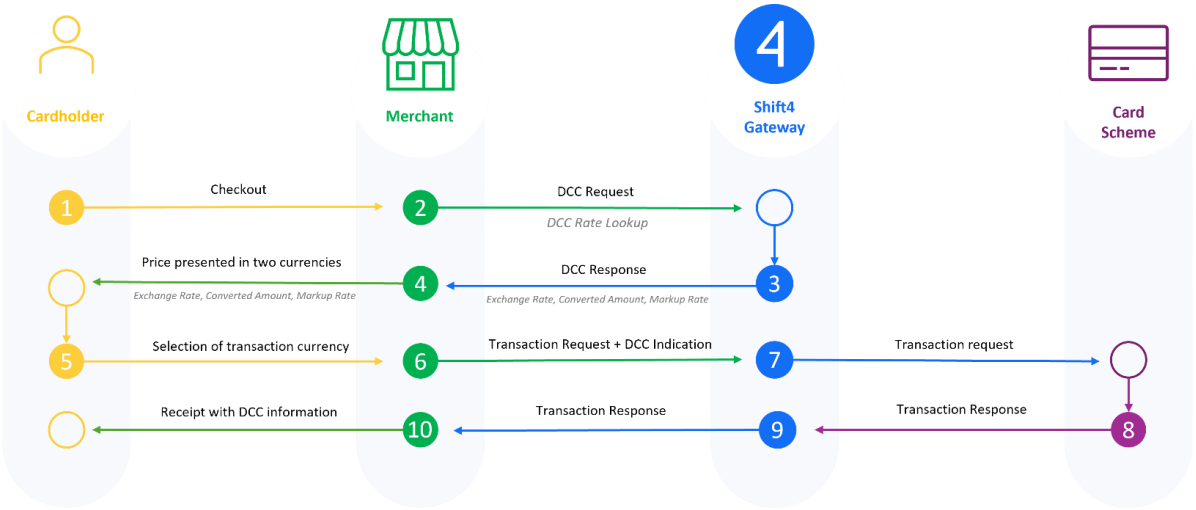
- [Shift4] - Payments Platform API Specifications
- [Shift4] - Card Present Specifications
- [Shift4] - DCC Implementation Guide

All documents are available in the Shift4 Developer Portal.

High-Level DCC Flow

The DCC payment flow consists of two main steps:

1. DCC rate lookup (request and response)
2. Transaction processing with the chosen amount and currency (request and response)



DCC Rate Lookup Step

1. The cardholder presents the card at checkout.
2. The merchant sends a DCC Rate Lookup request to Shift4.
3. Shift4 sends a DCC response with the converted amount, exchange rate and markup rate.
4. The merchant presents the cardholder with the price in the merchant currency and in the cardholder currency, including the exchange rate and markup.
5. The cardholder chooses whether to pay in the converted amount (DCC) or in the merchant currency.
6. The merchant proceeds with the transaction processing flow, sending a transaction request to Shift4 and retrieving a response back.
7. The merchant provides the cardholder with a receipt that includes the DCC information used in the transaction.

- DCC rate lookup can be initiated with either a card number (PAN) or a token of a saved card-on-file. See more details about it in the rate lookup section.
- DCC is not supported when the card is not eligible for DCC, depending on the issuer
- Refer to the DCC implementation guide for more information about the screen structure

Transaction Processing Step

This step is used to process payment authorisation. It is executed with additional DCC parameters whether the cardholder chose to proceed with the DCC converted amount or with the merchant currency, as well as if the DCC rate lookup indicated that DCC is not applicable for the card.

- The merchant sends the transaction request (Sale or Auth operations) with the DCC parameters indicating the cardholder's choice.
- Shift4 processes the transaction request.
- Shift4 returns the authorisation response to the merchant.
- The merchant provides the cardholder with a receipt that contains DCC information according to regulations.



- The DCC request and the sale/authorisation request must be sent within two hours of each other, otherwise the transaction will be declined.
- You can use either basic operations codes or card-on-file operation codes (create/use token with Sale or Auth), depending on how the payment is initiated by the card holder (with a PAN or a saved card) and your regular payment flows. Full information about the various operations codes is available in the Shift4 Payments Platform API Specifications.
- Partial refund, partial void and partial capture are not supported

DCC Specifications

DCC Rate Lookup Request

To retrieve the DCC information use one of the following operation codes, depending on whether the checkout was initiated with a card number (PAN) or a token.

[150]	DCC rate lookup for card-based payments (PAN)
[151]	DCC rate lookup for token-based payments

Request Parameters

This chapter only lists the parameters that are required for the DCC rate lookup. For detailed information about payments processing with Shift4, refer to additional supporting documents.

Name	Description	Type	Length (min,max)	Requirement [150],[151]
M	Shift4 assigned gateway merchant ID	[A-Z0-9_]	3,8	M
K	Unique cipher used for authenticating requests. Refer to *Appendix A: Message Cipher* in *Shift4 Payments Platform API Specifications* for further details on how to generate the cipher.	[0-9A-Za-z]	1,32	M
O	Operation Code The operation code is used for determining the requested service. **For DCC send 150**	[0-9]	1,3	M
a1	Request ID A unique transaction reference number. It should be unique to each transaction and to each MID. May be used when corresponding with the payment processor or reconciling transactions. Note: No plaintext cardholder data should be provided in this field.	[A-Za-z0-9-]	1,32	M

Name	Description	Type	Length (min,max)	Requirement [150],[151]
a2	Payment source type Valid options are: 2 - Online Order (default value) 3 - Telephone Order 4 - Mail Order 5 - Virtual Terminal 6 - UCAT Terminal 8 - Mobile device (mPOS) 10 - POS terminal	[0-9]	1,2	M
a4	Requested billing amount in the merchant's currency	[0-9]	1,12	M
a5	Transaction currency Indicates the currency that should be used in the transaction. Amounts in currencies that have two, three or no exponents should be formatted according to their currency requirements. Refer to *Appendix H: Transaction Currencies in Shift4 Payments Platform API Specifications* for further information. Refer to ISO 4217-alpha-3 for further information.	[A-Z]	3,3	M
a9	Transaction type. Valid values are: **Value** **Description** 5 Card-Only Validation 6 Straight Operation 9 Unscheduled Card-on-File transactions initiated by the cardholder Note: • By default, the transaction type is considered a straight operation (6) unless specified otherwise. • Merchant-initiated transactions (MIT) use cases are not allowed with DCC. DCC cannot be used for either the initial cardholder initiated transaction nor the subsequent MIT transactions (this includes recurring, subscription and unscheduled MIT).	[0-9]	1,2	O
a67	Local Transaction Datetime in ISO8601 format with time zone	[a-z]	29, 29	M

Name	Description	Type	Length (min,max)	Requirement [150],[151]
b1	PAN – Primary Account Number	[0-9]	8,19	C Mandatory only with O=150
b3	Card expiration month Two-digit number (*mm* format)	[0-9]	2,2	C Mandatory only with O=150
b4	Card expiration year Two-digit number (*yy* format)	[0-9]	2,2	C Mandatory only with O=150
b7	Track 2 data. The data must be stripped of start and end sentinels and have no parity but must otherwise remain unaltered.	[0-9,D]	10,37	C, M if the data is available.

Name	Description	Type	Length (min,max)	Requirement [150],[151]
b9	Card entry mode. Possible values: **Value** **Description** 05 PAN auto-entry via integrated circuit card (ICC) 07 PAN auto-entry via contactless M/Chip 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 91 PAN auto-entry via contactless magnetic stripe 95 Card Data was chip read and data is potentially unreliable	[0-9]	2,2	C Required only for payments made at a POS payment device (a2=6/8/10)
b10	PIN entry capability. Valid Values are: **Value** **Description** 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	[0-9]	1,1	C Required only for payments made at a POS payment device (a2=6/8/10)

Name	Description	Type	Length (min,max)	Requirement [150],[151]
b17	Card acceptor terminal ID. Identifies a terminal, unique to an acquirer. Must be sent in all card present transactions including referrals (in referral transactions, this field should indicate the terminal ID of the original transaction)	[A-Za-z0-9-]	1,8	C Required only for payments made at a POS payment device (a2=6/8/10)
g1	Token Shift4-generated Token that refers to a stored card profile.	[a-zA-Z0-9]	1,32	C Mandatory only for O=151

Response Fields

The following are the DCC-specific response fields that are received as part of the DCC rate lookup request (op codes 150 and 151). The response also includes all standard response parameters that presented in the *Response Fields* chapter in the *Shift4 Payments Platform API Specifications.* Some response fields may not be returned on all API calls.

Name	Description	Type	Length (min,max)
dcc_support_indication	Indication whether the card supports DCC or not. Possible values: 1 - The request was successful. DCC can be used. 0 - DCC is not supported	[0-9]	1,2
dcc_exchange_rate	The exchange rate of the DCC. There can be up to 4 decimal places after the decimal point, for example: 1.1234	[0-9.]	1,12
dcc_exchange_rate_date	The date of the DCC rate. *mmdd* format	[0-9]	4,4
dcc_converted_amount	The converted amount. There is no decimal point in this field; the decimal place is implied based on the currency.	[0-9]	1,12
dcc_converted_currency	The currency code of the converted currency. This field contains a 3-digit numeric code according to ISO standard codes.	[0-9]	3,3

Name	Description	Type	Length (min,max)
dcc_markup_percentage	The markup that is applied to the wholesale exchange rate. Can include up to 4 decimal places.	[0-9]	2,12
dcc_base_amount_display_unit	Specifies the exact currency unit and formatting that must be used when displaying the base amount on the merchant device. This field defines how the amount should appear to the cardholder (for example, whether to show 100JPY = 0.7920 EUR instead of 1JPY = 0.007920 EUR). Note: it does not indicate the currency's minor unit.	[0-9]	1,1
dcc_rate_diffover_ecb	Percentage difference between the base rate and to the rate presented to the customer. Returned only for currency conversions between EU country currencies. Not provided for transactions that are outside the scope of EU Regulation 2019/518.	String	3,5
dcc_messages_disclaimer	Disclaimer text for DCC offer	String	1,600
dcc_rate_markup_over_ecb	Percentage markup of the offered exchange rate over the ECB Reference Rate. Applicable only for currency conversions between EU country currencies. Not returned for transactions outside the scope of EU Regulation 2019/518.	[0-9]	3,5
g1	Token Shift4-generated Token that refers to a stored card profile.	[a-zA-Z0-9]	1,32

Processing Payment Transaction with DCC

The second step is to send the payment transaction with the amount matching the customer's selected currency. Send the transaction request using a Sale or Authorisation operation code that is applicable for your business model, and include the DCC request fields listed below.

Supported Operations

Operations that can be used after [150] – card-based DCC rate lookup

[1]	Sale
[2]	Auth
[23]	Create token with Sale
[28]	Create token – auth

Operations that can be used after [151] – token-based DCC rate lookup

[11]	Use token - sale
[12]	Use token - auth



- The Sale or Authorisation request must be sent within two hors of the the DCC request.
- For all operation codes that are a standalone auth (with a capture processed at a later stage), the payment authorisation must be set to a pre-authorisation type (a10=2)
- DCC is not supported for merchant-initiated transactions (MIT)

Request Parameters

The following are the DCC-specific request parameters that must be sent as part of the transaction in addition to the standard request parameters. they are added to the standard requirements of the applicable operation code:

Name	Description	Type	Length (min,max)	Requirement
dcc_indicator	Indicates DCC usage in the transaction. Possible values: 1 **Converted**: DCC is being used. 2 **Nonconvertible**: DCC cannot be used. 3 **Declined**: DCC was an option, but the customer declined it.	[0-9]	1,1	M
dcc_request_id	The Shift4 Gateway Transaction Identifier, received in parameter **z1** of the DCC response.	[a-zA-Z0-9]	1,32	M

Handling Capture, Refund and Void

- Do not include the DCC parameters when sending capture, refund, void and incremental authorisations. Resending the DCC parameters may result in a transaction decline.
- Process referral transactions according to the standard processing specifications. If the original transaction was processed with DCC, Shift4 automatically performs a rate lookup as part of the referral flow, and returns the updated information in the transaction response message.
- Partial refund, partial void and partial capture are not supported

3D Secure and DCC

If you are using Shift4 3D Secure service as part of the transaction processing flow, continue to use it the same for DCC transactions, as part of the transaction processing step.

If you are using Shift4 3D Secure without processing the transaction in the same flow, or if you are using a third-party 3D Secure service the 3D Secure authentication must be done with the cardholder's chosen amount and currency.

Error Codes

DCC error codes will appear in the z2 and z3 parameters. z2=72 indicates a DCC transaction error, and the specific error is reurned in z3. The table below describes only the DCC-related possible z3 values. Refer to Shift4 Payments Platform API specification for full list of error codes.

Error Message (z3)	Explanation
DCC Decline: Undefined Merchant/Operation combination.	DCC was declined because the merchant sent DCC request but is not allowed DCC
DCC Decline: The merchant is not enrolled for DCC	DCC was declined because the merchant sent the DCC request but is not enrolled for DCC
DCC request ID has not been found. Please submit a new DCC request	DCC was declined because the dcc_request_id referring to the DCC request was not found.
DCC request ID has not been found or approved. Please submit a new DCC request.	DCC was declined because the dcc_request_id referring to the DCC request was declined or not found.
DCC Decline: DCC request and transaction must be sent in the allowed timeframe. .	DCC was declined because the request and the transaction were not made within the allowed timeframe.
DCC Decline: Amount doesn’t match the original transaction amount	DCC was declined because the void amount and the original transaction amount do not match
DCC Decline: please try again without DCC	DCC was declined because the refund transaction was sent with DCC indicators, but the original transaction was not sent with DCC

Change History

Version	Date	Change Description
1.2	October 2026	Adding support for EDCC, token based and 3D Secure
1.1	March 2026	Adding supported transaction types- authorization and capture
1.0	December 2025	First release

Need Support?

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