DirectLink

Integration Guide for the Server-to-Server Solution v.4.3.3

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1 How Does DirectLink Work?

DirectLink allows you to set up customised links between your applications and our system, as if our system were simply a local server. It provides programme to programme (server to server) access between the merchant's software and our payment and administration functions. The merchant's programme interacts directly with our remote API without human intervention.

Using DirectLink, there is no contact between our system and the merchant's customer. The merchant transmits all the information required to make the payment directly to our system in an HTTPS POST request. Our system requests the financial transaction (synchronously or asynchronously) to the relevant acquirer and returns the response to the merchant in XML format. The merchant's programme reads the response and resumes its processing.

The merchant is therefore responsible for collecting and storing his customer's confidential payment details. He must guarantee the confidentiality and security of these details by means of encrypted web communication and server security. If the merchant does not want to store sensitive information such as card numbers, we recommend using the Alias option in his account (please refer to the Alias Manager integration guide for more information).

The merchant can process new orders, perform maintenance on existing orders and query the status of an order using DirectLink.

Even if the merchant has automated requests with DirectLink, he can consult the history of the transaction manually in the back office, using his web browser or a report download. For the configuration and functionality of the administration site, please refer to the Back-Office User Guide.

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2 General Procedures and Security Settings

IMPORTANT

The following general procedures and security controls are valid for all DirectLink requests: new order requests, maintenance requests and direct queries.

2.1 Request form

For new order requests, maintenance requests and direct queries, the merchant must send requests with certain parameters to specific URLs. The payment/maintenance/query parameters must be sent in a POST request as follows:

PSPID=value1&USERID=value2&PSWD=value3&...

The type/subtype indicating the Media Type in the Content-Type entity-header field in the POST request needs to be "application/x-www-form-urlencoded".

DirectLink works in “one request-one reply” mode, each payment is processed individually. Our system handles individual transaction requests via DirectLink and can work synchronously (where this option is technically supported), i.e. we wait for the bank’s reply before returning an XML response to the request.

2.2 Security

When we receive a request on our servers, we check the level of encryption and the IP address which the request was sent from.

2.2.1 Encryption

DirectLink is built on a robust, secure communication protocol. DirectLink API is a set of instructions submitted with standard HTTPS POST requests.

At the server end, we use a certificate delivered by Verisign. The SSL encryption guarantees that it is *our* servers you are communicating with and that your data is transmitted in encrypted form. There is no need for a client SSL certificate.

When we receive a request, we check the level of encryption. We only allow the merchant to connect to us in secure https mode using SSL v3. This guarantees 128-bit encryption.

2.2.2 IP address

For each request, our system checks the IP address from which the request originates to ensure the requests are being sent from the merchant’s server. In the IP address field of the "Data and origin verification" tab, in the "Checks for DirectLink" section of the Technical Information page of your account you must enter the IP address(es) or IP address range(s) of the servers that send your requests.

If the IP address from which the request originates has not been declared in the IP address field of the "Data and origin verification" tab, checks for DirectLink section of the Technical Information page in your account, you will receive the error message *“unknown order/1/i”.* The IP address the request was sent from will also be displayed in the error message.

2.3 Response parsing

We will return an XML response to your request. Please ensure that your systems parse this XML response as tolerantly as possible to avoid issues in the future, e.g. avoid case-sensitive attribute names, do not prescribe a specific order for the attributes returned in responses, ensure that new attributes in the response will not cause issues, etc.

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3 Request a New Order

3.1 Order request

3.1.1 Request URL

The request URL in the TEST environment is https://e-payment.postfinance.ch/ncol/test/orderdirect.asp.

The request URL in the PRODUCTION environment is https://e-payment.postfinance.ch/ncol/prod/orderdirect.asp.

IMPORTANT

Do not forget to replace “test” with “prod” in the request URL when you switch to your PRODUCTION account. If you forget to change the request URL, once you start in production with real orders, your transactions will be sent to the test environment and will not be sent to the acquirers/banks.

3.1.2 Request parameters

The following table contains the request parameters for sending a new order:

Parameter (* = Mandatory)	Usage
PSPID*	Your affiliation name in our system.
ORDERID*	Your unique order number (merchant reference).
USERID*	Name of your application (API) user. Please refer to the User Manager documentation for information on how to create an API user.
PSWD*	Password of the API user (USERID).
AMOUNT*	Amount to be paid MULTIPLIED BY 100, as the format of the amount must not contain any decimals or other separators.
CURRENCY*	ISO alpha order currency code, for example: EUR, USD, GBP, CHF, etc.
CARDNO*	Card/account number.
ED*	Expiry date (MM/YY or MMYY).
COM	Order description.
CN	Customer name.
EMAIL	Customer’s email address.
SHASIGN	Signature (hashed string) to authenticate the data (see section 3.5).
CVC*	Card Verification Code. Depending on the card brand, the verification code will be a 3- or 4-digit

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Parameter (* = Mandatory)	Usage
	code on the front or rear of the card, an issue number, a start date or a date of birth.
ECOM_PAYMENT_CARD_VERIFICATION	Alternative to CVC: date of birth / issue number / etc. (depending on country/bank)
OWNERADDRESS	Customer's street name and number.
OWNERZIP	Customer's postcode.
OWNERTOWN	Customer's town/city name.
OWNERCTY	Customer's country, e.g. BE, NL, FR, etc.
OWNERTELNO	Customer's telephone number.
OPERATION* *(not strictly required, but strongly recommended)*	Defines the type of requested transaction. You can configure a default operation (payment procedure) in the "Global transaction parameters" tab, "Default operation code" section of the Technical Information page. When you send an operation value in the request, this will overwrite the default value. Possible values: ▪ RES: request for authorisation ▪ SAL: request for direct sale ▪ RFD: refund, not linked to a previous payment, so not a maintenance operation on an existing transaction (you can not use this operation without specific permission from your acquirer).
GLOBORDERID	Reference grouping several orders together; allows you to request a joint maintenance operation on all these transactions at a later stage.
WITHROOT	Adds a root element to our XML response. Possible values: 'Y' or empty.
REMOTE_ADDR	Customer's IP address (for Fraud Detection Module only). If a country check does not need to be performed on the IP address, send 'NONE'.
RTIMEOUT	Request timeout for the transaction (in seconds, value between 30 and 90) IMPORTANT: The value you set here must be smaller than the timeout value in your system!
ECI	Electronic Commerce Indicator. You can configure a default ECI value in the "Global transaction parameters" tab, "Default ECI value" section of the Technical Information page. When you send an ECI value in the request, this will overwrite the default ECI value. Possible (numeric) values: 0 - Swiped

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Parameter (* = Mandatory)	Usage
	1 - Manually keyed (MOTO) (card not present) 2 - Recurring (from MOTO) 3 - Instalment payments 4 - Manually keyed, card present 7 - E-commerce with SSL encryption 9 - Recurring (from e-commerce)

More information about these fields can be found in your PostFinance account. Just log in and go to: Support > Integration & user manuals > Technical guides > Parameter Cookbook.

The list of possible parameters to send can be longer for merchants who have activated certain options/functionalities in their accounts. Please refer to the respective option documentation for more information on extra parameters linked to the option.

The following request parameters are mandatory in new orders:

- PSPID and USERID
- PSWD
- ORDERID
- AMOUNT (x 100)
- CURRENCY
- CARDNO
- ED
- CVC
- OPERATION

3.1.3 Test page

A test page for an order request can be found at https://e-payment.postfinance.ch/ncol/test/testodl.asp.

3.1.4 Excluding specific payment methods

If there are payment methods you don't want a customer to be able to pay with, you can use a parameter to do so.
This is particularly useful for sub-brands, when you want to accept a brand (e.g. MasterCard) but not one of its sub-brands (e.g. Maestro)

The parameter is the following:

Field	Usage
EXCLPMLIST	List of payment methods and/or credit card brands that should NOT be used, separated by a “;” (semicolon).

More information about these fields can be found in your PostFinance account. Just log in and go to: Support > Integration & user manuals > Technical guides > Parameter Cookbook.

If a customer tries paying with a card linked to a payment method and/or (sub)brand you've excluded using the EXCLPMLIST parameter, the error message “Card number incorrect or incompatible” will be returned with the NCERRORPLUS return field.

3.1.5 Split credit/debit cards

The functionality to split VISA and MasterCard into a debit and a credit payment method allows you to offer them to your customers as two different payment methods (e.g. VISA Debit and VISA

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Credit), or you can decide only to accept one of both split brands.

To use the split of credit and debit cards via DirectLink, you need to include the CREDITDEBIT parameter in the hidden fields you send to the orderdirect.asp page.

Parameter	Format
CREDITDEBIT	"C": credit card "D": debit card

This field has to be included in the SHA-IN calculation

Related error: When the buyer selects the debit card method but next enters a credit card number, an error code will be returned: 'Wrong brand/Payment method was chosen'

If the payment is successfully processed with the CREDITDEBIT parameter, the same parameter will also be returned in the XML response, and/or can be requested with a Direct Query. However, whereas the submitted values are C or D, the return values are "CREDIT" or "DEBIT".

You will also find these return values in transaction overview via "View transactions" and "Financial history", and in reports you may download afterwards.

Configuration in your account

The split functionality can be activated and configured per payment method, in your PostFinance account. Check our Split Credit/Debit Cards guide for more information.

3.2 Order response

Our server returns an XML response to the request:

Example of an XML response to an order request:

```
<?xml version=”1.0”?>
<ncresponse orderID=”99999” PAYID=”1111111” NCSTATUS=”0” NCERROR=””
NCERRORPLUS=”” ACCEPTANCE=”12345” STATUS=”5” ECI=”7” amount="125"
currency="EUR" PM="CreditCard" BRAND="VISA"/>
```

The following table contains a list of the ncresponse tag attributes:

Field	Usage
orderID	Your order reference.
PAYID	Payment reference in our system.
NCSTATUS	First digit of NCERROR.
NCERROR	Error code.
NCERRORPLUS	Explanation of the error code.
ACCEPTANCE	Acceptance code returned by acquirer.
STATUS	Transaction status.
ECI	Electronic Commerce Indicator.
amount	Order amount (not multiplied by 100).

Field	Usage
currency	Order currency.
PM	Payment method.
BRAND	Card brand or similar information for other payment methods.

More information about these fields can be found in your PostFinance account. Just log in and go to: Support > Integration & user manuals > Technical guides > Parameter Cookbook.

The attribute list may be longer for merchants who have activated certain options (e.g. the Fraud Detection Module) in their accounts. Please refer to the respective option documentation for further information about additional response attributes linked to the option.

3.3 Possible response statuses

Status	NCERROR	NCSTATUS	Explanation
5 Authorised	0	0	The authorisation has been accepted. An authorisation code is available in the field “ACCEPTANCE”. The status will be 5 if you have configured "Authorisation" as default operation code in your Technical Information page or if you send Operation code RES in your transaction request.
9 Payment requested	0	0	The payment has been accepted. An authorisation code is available in the field “ACCEPTANCE”. The status will be 9 if you have configured "Sale" as the default operation code in your Technical Information page or if you have sent Operation code SAL in your transaction request.
0 Invalid or incomplete	500....	5	At least one of the payment data fields is invalid or missing. The NCERROR and NCERRORPLUS fields contains an explanation of the error. After correcting the error, the customer can retry the authorisation process.
2 Authorisation refused	300....	3	The authorisation has been declined by the financial institution. The customer can retry the authorisation process after selecting a different payment method (or card brand).
51 Authorisation waiting	0	0	The authorisation will be processed offline. This is the standard response if you have chosen offline processing in the account configuration. The status will be 51 in two cases: • You have defined “Always offline” in the "Global transaction parameters" tab, "Processing for individual transactions" section of the Technical Information page in

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Status	NCERROR	NCSTATUS	Explanation
			your account. • When the online acquiring system is unavailable and you have defined "Online but switch to offline in intervals when the online acquiring system is unavailable" in the "Global transaction parameters" tab, in the "Processing for individual transactions" section of the Technical Information page in your account. You cannot retry the authorisation process because the payment might be accepted offline.
52 Authorisation not known Or 92 Payment uncertain	200...	2	A technical problem arose during the authorisation/ payment process, giving an unpredictable result. The merchant can contact the acquirer helpdesk to establish the precise status of the authorisation/ payment or wait until we have updated the status in our system. The customer should not retry the authorisation process, as the authorisation/payment might already have been accepted.

More information about statuses and error codes can be found in your PostFinance account. Just log in and go to: Support > Integration & user manuals > User guides > List of the payment statuses and error codes.

3.4 Duplicate request

If you request processing for an already existing (and correctly processed) orderID, our XML response will contain the PAYID corresponding to the existing orderID, the ACCEPTANCE given by the acquirer in the previous processing, STATUS "0" and NCERROR "50001113".

3.5 Additional security: SHA signature

The SHA signature is based on the principle of the merchant's server generating a unique character string for each order, hashed with the SHA-1, SHA-256 or SHA-512 algorithms. The result of this hash is then sent to us in the merchant's order request. Our system reconstructs this signature to check the integrity of the order data sent to us in the request.

This string is constructed by concatenating the values of the fields sent with the order (sorted alphabetically, in the 'parameter=value' format), with each parameter and value followed by a passphrase. The passphrase is defined in the merchant's *Technical information*, under the "Data and Origin Verification" tab, in the "Checks for DirectLink" section. For the full list of parameters to include in the SHA Digest, please refer to Appendix 4. Please note that these values are all case-sensitive when compiled to form the string before the hash!

IMPORTANT

- All parameters that you send (and that appear in the list in List of Parameters to be included in SHA IN Calculation), will be included in the string to hash.
- All parameter names should be in UPPERCASE (to avoid any case confusion)
- Parameters need to be sorted alphabetically
- Parameters that do not have a value should NOT be included in the string to hash
- When you choose to transfer your test account to production via the link in the account menu, a random SHA-IN passphrase will be automatically configured in your production account.

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- For extra safety, we request that you use different SHA passwords for TEST and PROD. Please note that if they are found to be identical, your TEST passphrase will be changed by our system (you will of course be notified).

When you hash the string composed with the SHA algorithm, a hexadecimal digest will be returned The length of the SHA Digest is 40 characters for SHA-1, 64 for SHA-256 and 128 for SHA-512. This result should be sent to our system in your order request, using the “SHASign” field.

Our system will recompose the SHA string based on the received parameters and compare the Merchant’s Digest with our generated Digest. If the result is not identical, the order will be declined. This check guarantees the accuracy and integrity of the order data.

You can test your SHASIGN here.

Example of a SHA-1-IN calculation with only basic parameters

Parameters (in alphabetical order)
AMOUNT: 15.00 -> 1500
CARDNO: 4111111111111111
CURRENCY: EUR
OPERATION: RES
ORDERID: 1234
PSPID: MyPSPID

SHA Passphrase (In technical info)
Mysecretsig1875!?

String to hash
AMOUNT=1500Mysecretsig1875!?CARDNO=4111111111111111Mysecretsig1875!?
CURRENCY=EURMysecretsig1875!?OPERATION=RESMysecretsig1875!?
ORDERID=1234Mysecretsig1875!?PSPID=MyPSPIDMysecretsig1875!?

Resulting Digest (SHA-1)
2B459D4D3AF0C678695AE77EE5BF0C83CA6F0AD8

If the SHASIGN sent in your request does not match the SHASIGN which we derived using the details of the order and the passphrase entered in the SHA-IN Signature field in the "Data and origin verification" tab, checks for DirectLink section of the Technical Information page, you will receive the error message *“unknown order/1/s".*

If the "SHASIGN" field in your request is empty but a passphrase has been entered in the SHA-IN Signature field in the "Data and origin verification" tab, checks for DirectLink section of the Technical Information page (indicating you want to use a SHA signature with each transaction), you will receive the error message *“unknown order/0/s".*

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4 Direct Maintenance: Maintenance on Existing Orders

A direct maintenance request from your application allows you to: perform a data capture (payment) of an authorised order automatically (as opposed to manually in the back office); cancel an authorisation on an order; renew an authorisation of an order; or refund a paid order.

Data captures, authorisation cancellations and authorisation renewals are specifically for merchants who have configured their account/requests to perform the authorisation and the data capture in two stages.

4.1 Maintenance request

4.1.1 Request URL

The request URL in the TEST environment is https://e-payment.postfinance.ch/ncol/test/maintenancedirect.asp.

The request URL in the PRODUCTION environment is https://e-payment.postfinance.ch/ncol/prod/maintenancedirect.asp.

IMPORTANT

Do not forget to replace “test” with “prod” in the request URL when you switch to your PRODUCTION account. If you forget to change the request URL, once you start working with real orders, your maintenance transactions will be sent to the test environment and will not be sent to the acquirers/banks.

4.1.2 Request parameters

The following table contains the mandatory request parameters for performing a maintenance operation:

Field	Usage
PSPID	Login details: PSPID and (API) USERID with the USERID’s password
USERID	
PSWD	
PAYID	You can send the PAYID or the orderID to identify the original order. We recommend the use of the PAYID.
ORDERID	
AMOUNT	Order amount multiplied by 100. This is only required when the amount of the maintenance differs from the amount of the original authorisation. However, we recommend its use in all cases. Our system will check that the maintenance transaction amount is not higher than the authorisation/payment amount.
OPERATION	Possible values: ▪ REN: renewal of authorisation, if the original authorisation is no longer valid. ▪ DEL: delete authorisation, leaving the transaction open for further

Field	Usage
	potential maintenance operations. ▪ DES: delete authorisation, closing the transaction after this operation. ▪ SAL: partial data capture (payment), leaving the transaction open for another potential data capture. ▪ SAS: (last) partial or full data capture (payment), closing the transaction (for further data captures) after this data capture. ▪ RFD: partial refund (on a paid order), leaving the transaction open for another potential refund. ▪ RFS: (last) partial or full refund (on a paid order), closing the transaction after this refund. Please note with DEL and DES that not all acquirers support the deletion of an authorisation. If your acquirer does not support DEL/DES, we will nevertheless simulate the deletion of the authorisation in the back office.

More information about these fields can be found in your PostFinance account. Just log in and go to: Support > Integration & user manuals > Technical guides > Parameter Cookbook.

4.1.3 Test page

An example (test page) of a direct maintenance request can be found at: https://e-payment.postfinance.ch/ncol/test/testdm.asp

4.2 Maintenance response

Our server returns an XML response to the request:

Example of an XML response to a direct maintenance request:

```
<?xml version=”1.0”?>
<ncresponse orderID=”99999” PAYID=”1111111” PAYIDSUB=”3” NCSTATUS=”0”
NCERROR=”” NCERRORPLUS=”” ACCEPTANCE=”12345” STATUS="91" amount="125"
currency="EUR" PM="CreditCard" BRAND="VISA"/>
```

The following table contains a list of the ncresponse tag attributes:

Field	Usage
ORDERID	Your order reference
PAYID	Payment reference in our system
PAYIDSUB	The history level ID of the maintenance operation on the PAYID
ACCEPTANCE	Acceptance code returned by acquirer
STATUS	Transaction status
NCERROR	Error code
NCSTATUS	First digit of NCERROR
NCERRORPLUS	Explanation of the error code
AMOUNT	Order amount (not multiplied by 100)

Field	Usage
CURRENCY	Order currency

More information about these fields can be found in your PostFinance account. Just log in and go to: Support > Integration & user manuals > Technical guides > Parameter Cookbook.

The standard ncresponse tag attributes are the same as those for the XML reply to a new order, except for the extra attribute PAYIDSUB.

4.3 Possible transaction statuses

The maintenance orders are always processed offline (except for authorisation renewals).

Status	NCERROR	NCSTATUS	Explanation
0 - Invalid or incomplete	500....	5	At least one of the payment data fields is invalid or missing. The NCERROR and NCERRORPLUS fields give an explanation of the error.
91 - Payment processing	0	0	The data capture will be processed offline.
61 - Author. deletion waiting	0	0	The authorisation deletion will be processed offline.
92 - Payment uncertain	200...	2	A technical problem arose during the payment process, giving an unpredictable result. The merchant can contact the acquirer helpdesk to establish the precise status of the payment or wait until we have updated the status in our system. You should not repeat the payment process, as the payment might already have been accepted.
62 - Author. deletion uncertain	200...	2	A technical problem arose during the authorisation deletion process, giving an unpredictable result. The merchant can contact the acquirer helpdesk to establish the precise status of the payment or wait until we have updated the status in our system.
93 - Payment refused	300....	3	A technical problem arose.
63 - Author. deletion refused	300....	3	A technical problem arose.

More information about statuses and error codes can be found in your PostFinance account. Just log in and go to: Support > Integration & user manuals > User guides > List of the payment statuses and error codes.

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4.4 Duplicate request

If maintenance is requested twice for the same order, the second one will theoretically be declined with an error “50001127” (this order is not authorised), because the initial successful transaction will have changed the order status.

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5 Direct Query: Querying the Status of an Order

A direct query request from your application allows you to query the status of an order automatically (as opposed to manually in the back office). You can only query one payment at a time, and will only receive a limited amount of information about the order.

If you need more details about the order, you can look up the transaction in the back office or perform a manual or automatic file download (please refer to the Back office User Guide and the Advanced Batch Integration Guide).

5.1 Query request

5.1.1 Request URL

The request URL in the TEST environment is https://e-payment.postfinance.ch/ncol/test/querydirect.asp

The request URL in the PRODUCTION environment is https://e-payment.postfinance.ch/ncol/prod/querydirect.asp

IMPORTANT

Do not forget to replace “test” with “prod” in the request URL when you switch to your PRODUCTION account.

5.1.2 Request parameters

The following table contains the mandatory request parameters to perform a direct query:

Field	Usage
PSPID	Login details: PSPID and (API) USERID with the USERID’s password
USERID	
PSWD	
PAYID	You can send the PAYID or the ORDERID to identify the original order. We recommend the use of the PAYID.
ORDERID	
PAYIDSUB	You can indicate the history level ID if you use the PAYID to identify the original order (optional).

More information about these fields can be found in your PostFinance account. Just log in and go to: Support > Integration & user manuals > Technical guides > Parameter Cookbook.

5.1.3 Test page

An example (test page) of a direct query request, can be found at: https://e-payment.postfinance.ch/ncol/test/testdq.asp.

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5.2 Query response

Our server returns an XML response to the request:

Example of an XML response to a direct query:

```
<?xml version=”1.0”?>
<ncresponse orderID=”99999” PAYID=”1111111” PAYIDSUB=”3” NCSTATUS=”0”
NCERROR=”” NCERRORPLUS=”” ACCEPTANCE=”12345” STATUS="9" ECI=”7” amount="125"
currency="EUR" PM="CreditCard" BRAND="VISA" CARDNO="XXXXXXXXXXXX1111"
IP="212.33.102.55"/>
```

The following table contains a list of the ncresponse tag attributes:

Field	Usage
orderID	Your order reference
PAYID	Payment reference in our system
PAYIDSUB	The history level ID of the maintenance operation on the PAYID
NCSTATUS	First digit of NCERROR
NCERROR	Error code
NCERRORPLUS	Explanation of the error code
ACCEPTANCE	Acceptance code returned by acquirer
STATUS	Transaction status
ECI	Electronic Commerce Indicator
amount	Order amount (not multiplied by 100)
currency	Order currency
PM	Payment method
BRAND	Card brand or similar information for other payment methods
CARDNO	The masked credit card number
IP	Customer’s IP address, as detected by our system in a 3-tier integration, or sent to us by the merchant in a 2-tier integration

More information about these fields can be found in your PostFinance account. Just log in and go to: Support > Integration & user manuals > Technical guides > Parameter Cookbook.

The standard ncresponse tag attributes are identical to those for the XML reply to a new order, except for the additional attributes PAYIDSUB, CARDNO and IP.

The attribute list may be longer for merchants who have activated certain options (e.g. the Fraud Detection Module) in their accounts. Please refer to the respective option documentation for more information on extra response attributes linked to the option.

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5.2.1 Transactions processed with e-Commerce

If the transaction whose status you want to check was processed with e-Commerce, you will also receive the following additional attributes (providing you sent these fields with the original e-Commerce transaction).

Field	Usage
complus	A value you wanted to have returned
(paramplus content)	The parameters and their values you wanted to have returned

For more information, please refer to the Advanced e-Commerce integration guide in the Support section of your account.

Example of an XML response to a direct query for an e-Commerce transaction:

```
<?xml version=”1.0”?>
<ncresponse orderID=”99999” PAYID=”1111111” PAYIDSUB=”3” NCSTATUS=”0” NCERROR=””
NCERRORPLUS=”” ACCEPTANCE=”12345” STATUS="9" amount="125" currency="EUR"
PM="CreditCard" BRAND="VISA" CARDNO="XXXXXXXXXXXX1111" IP="212.33.102.55"
COMPLUS="123456789123456789123456789" SessionID="126548354"
ShopperID="73541312"/>
```

5.3 Possible response statuses

The STATUS field will contain the status of the transaction.

> *More information about statuses and error codes can be found in your PostFinance account. Just log in and go to: Support > Integration & user manuals > User guides > List of the payment statuses and error codes.*

Only the following status is specifically related to the query itself:

Status	NCERROR	NCSTATUS	Explanation
88			The query on querydirect.asp failed

5.4 Direct Query as fallback

The response times for a DirectLink transaction request are generally a few seconds; some acquirers may, however, have longer response times. If you want to install a check mechanism to verify that our system is up and running smoothly, we suggest you set the request timeout in orderdirect.asp to 30 seconds (30-40 for Diners).

If you have not received a response from our system after 30 seconds, you can send a request to querydirect.asp, asking for the status of your most recent transaction sent to orderdirect.asp. If you receive an immediate reply containing a non-final status for the transaction, there might be issues at the acquirer's end.

If you have not received an answer to this direct query request after 10 seconds, there might be issues at our end. You can repeat this request to querydirect.asp every 30 seconds until you see you receive a response within 10 seconds.

Please note:

1. This check system will only be able to pinpoint issues at our end if there is also a check at your end to verify that requests are leaving your servers correctly.

2. An issue at our end will not always necessarily be caused by downtime, but could also be as a result of slow response times due to database issues for example.

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3. Please use these checks judiciously to avoid bombarding our servers with requests, otherwise we might have to restrict your access to the querydirect.asp page.

IMPORTANT

To protect our system from unnecessary overloads, we prohibit system-up checks which involve sending fake transactions or systematic queries, as well as systematic queries to obtain transaction feedback for each transaction.

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6 Appendix: DCC

To use Dynamic Currency Conversion (DCC), your acquirer must support this option. For further information please contact our Merchanthelp customer service, tel. +41 848 382 423 or e-mail: merchanthelp@postfinance.ch.

On request, you can make use of the Dynamic Currency Conversion (DCC). Once this option is enabled, it allows your customers to choose between their preferred currency and the one you've configured in your PostFinance account.

With DirectLink, the DCC process is split up in two stages:

1. You request the DCC details, based on the customer's card BIN number
2. You request the payment with a general DirectLink call, including some extra parameters (to provide the chosen DCC details you've obtained earlier on)

6.1 DCC details request via PostFinance DCC API

If you want to retrieve the DCC offer for the card number used by the customer, you must use the DCC API. This API will return an XML document containing the DCC values that PostFinance retrieved from the DCC provider.

There are a few conditions if you want to use the DCC API:

- The DirectLink option needs to be enabled in your account
- The DCC option needs to be enabled in your account
- You should also be able to support the card brand for which you requests the DCC rates; e.g. you cannot request DCC rates for a VISA credit card if you don't support VISA payments or if you don't support DCC payments for this card type.

6.1.1 API URL and parameters

The following URLs are used to call the PostFinance DCC API:

TEST: https://e-payment.postfinance.ch/ncol/test/getDCCRates.asp
PROD: https://e-payment.postfinance.ch/ncol/prod/getDCCRates.asp

To receive a valid DCC rate response, you must send the following parameters to the DCC API:

Parameter	Usage	Value
PSPID	The PSPID of the merchant	
USERID	Userid for multi-users account	
PSWD	Password of the API-user	
ORDERID	The merchant's unique order reference	Alphanumeric
CURRENCY	The original currency of the amount	Three alphanumeric characters
AMOUNT	The original amount to be converted (amount x 100)	Numeric
BIN	The first digits (BIN number) of the customer’s card	Numeric (length: 6)
CONVCCY	The currency the amount should be converted to	Three alphanumeric characters

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Parameter	Usage	Value
SHASIGN	Digest (hashed string) to authenticate the data	

More information about these fields can be found in your PostFinance account. Just log in and go to: Support > Integration & user manuals > Technical guides > Parameter Cookbook.

If any of these parameters are not properly provided, an error will occur.

Note: The order reference provided with the ORDERID parameter is a mandatory parameter that must be unique. It is important that this reference will be used later on again when processing the actual transaction, since the DCC rates will be attached to this specific order. The same order reference should be used if several DCC rate queries are done for the same transaction.

6.1.2 SHA calculation

Below we display how the SHA calculation for the DCC request works. Even though the principle is the same, this SHA calculation is not to be confused with the pre-payment SHA (cf. Additional security: SHA signature); these are two separate processes.

Parameters:
AMOUNT: 1.50 --> 150
BIN: 411111
CURRENCY: EUR
ORDERID: order00001
PSPID: MyPSPID
PSWD: MySecretPswd51
USERID: MyAPIUser

SHA passphrase (in Technical information):
MySecretSig1875!?

String to hash:
AMOUNT=150MySecretSig1875!?BIN=411111MySecretSig1875!?CURRENCY=EURMySecretSig1875!?
ORDERID=order00001MySecretSig1875!?PSPID=MyPSPIDMySecretSig1875!?
PSWD=MySecretPswd51MySecretSig1875!?USERID=MyAPIUserMySecretSig1875!?

Resulting digest (SHA-1):
EFA8DD0C297CBA45DD7ADBEAF7CA4699C8F3C19B

6.1.3 API response

The response of the API call is always an XML structured document containing all information needed to proceed to the second stage of the transaction process.

6.1.3.1 Successful response

If the DCC rates were successfully obtained, the XML will have the following format:

<dccResponse>	
<orderid></orderid>	→ Merchant's unique order reference *(alphanumeric)*
<commPerc></commPerc>	→ Commission percentage *(numeric)*
<convAmt></convAmt>	→ Amount after the conversion
<convCcy></convCcy>	→ Conversion currency *(3 chars)*
<reference></reference>	→ DCC reference *(can be empty)*
<exchRate></exchRate>	→ Exchange rate *(numeric)*
<exchRateSource></exchRateSource>	→ Source that has provided the DCC rates

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<exchRateTS></exchRateTS>	→ Timestamp of DCC rates *(DateTime)*
<marginPerc></marginPerc>	→ Margin percentage *(numeric)*
<valid></valid>	→ Validity of the offer (in hours) *(numeric)*
</dccResponse>	

The timestamp of when the DCC rates were fetched, are provided in the default XML DateTime datatype, which is the following form "YYYY-MM-DDThh:mm:ss", where:

- YYYY indicates the year
- MM indicates the month
- DD indicates the day
- T indicates the start of the required time section
- hh indicates the hour
- mm indicates the minute
- ss indicates the second

6.1.3.2 Erroneous response

If something went wrong during the processing of the DCC API call, or for any technical reason (e.g. the DCC provider is not reachable, the data provided is not correct, etc.) an error occurs through the XML response. An erroneous DCC API call has the following format:

<dccResponse>	
<error>	
<code></code>	→ Error code *(numeric)*
<desc></desc>	→ Error description *(string)*
</error>	
</dccResponse>	

6.2 DCC Payment request

After the merchant has obtained the possible DCC details and has displayed this to the customer, the customer should have the choice whether or not to use it, e.g. pay in his own currency (a conversion happens between his own card currency and the currency of the merchant) or pay in the merchant's currency (no currency conversion will be done).

Below we explain the case when the customer has chosen to pay in his own currency, which means he will make use of the proposed currency conversion. This is the most advanced case since the merchant will be required to add additional parameters to the DirectLink request, in order to provide the chosen DCC values.

In both cases though (DCC accepted or not), the merchant is obliged to provide a common additional parameter which is the *DCC indicator*. This *DCC indicator* indicates whether or not the customer accepted the DCC proposal.

6.2.1 Parameters

The following parameters can or must be provided:

Parameter	Mandatory	Usage	Value
DCC_INDICATOR	Y	DCC indicator (indicates whether or not the customer accepted the DCC proposal). Possible values: • 0: Customer pays in the merchant's currency (no conversion done)	Either 0 or 1

Parameter	Mandatory	Usage	Value
		- 1: Customer pays in his own currency (conversion is accepted) This parameter is always mandatory to indicate DCC was used for this transaction.	
DCC_CONVAMOUNT	Y	Converted amount	Numeric
DCC_CONVCCY	Y	Converted currency	Three characters
DCC_EXCHRATE	Y	Exchange rate	Numeric
DCC_SOURCE	Y	Exchange rate source	Max length: 32
DCC_EXCHRATETS	Y	Exchange rate date	[yyyy-mm-dd hh:mm:ss]
DCC_VALID	Y	Exchange rate validity (expressed in hours)	Numeric
DCC_MARGINPERC	Y	Margin percentage	Numeric
DCC_COMMPERC	N	Commission percentage	Numeric
DCC_REF	N	Reference of the DCC	Max length: 80
ORDERID*	Y	Merchant's order reference	Alphanumeric

** The ORDERID should match the one used during the DCC API call. If the ORDERID is not provided or does not match the one used during an API call, the transaction will be blocked.*

More information about these fields can be found in your PostFinance account. Just log in and go to: Support > Integration & user manuals > Technical guides > Parameter Cookbook.

All of these values are provided through the PostFinance DCC API when doing the DCC request (stage 1).

6.2.2 Expired DCC offer validity

Every DCC offer has its own validity time, which can be calculated by adding the DCC_VALID parameters (validity period expressed in hours) to the datetime value provided in DCC_EXCHRATETS. If we detect that a DCC offer was provided alongside the transaction which had already expired, there are two possible outcomes, depending on the merchant configuration. Note that this is only relevant in case the customer accepted the DCC offer (DCC_INDICATOR = 1). If he did not accept the DCC offer it is of no importance to PostFinance to review the validity of the declined offer.

The first case occurs when the merchant is configured to block the transaction when the DCC offer has expired. PostFinance then simply does so, and the general error number 50001111 is returned.

In the second case we do not block the transaction. Instead we retrieve a new DCC offer ourselves. For this we make use of the currency and amount provided to us in the original transaction and this offer will automatically be accepted (note that the rates may be different from the expired ones sent by the merchant).

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6.2.3 Possible errors

Error ID	Explanation
50001111	General error code
50001118	Unknown or inactive PSPID
50001122	Invalid or inactive currency
50001120	Unknown currency code
50001144	Acquirer not found based on input
50001146	DCC configuration not found for PSPID + Brand
50001184	SHA mismatch
30131001	Invalid amount

More information about statuses and error codes can be found in your PostFinance account. Just log in and go to: Support > Integration & user manuals > User guides > List of the payment statuses and error codes.

There are a few possible issues when a merchant uses DCC in DirectLink. All of them speak for themselves but since we use a general error code (50001111) for some of them, some explanation is required.

Possible errors:

- The validity of the DCC offer expired. This is calculated based on DCC_EXCHRATETS plus DCC_VALID (expressed in hours).
- An incorrect value is used in one of the fields, e.g. DCC_INDICATOR should be 0 or 1, DCC_EXCHRATETS should be a well formatted date, DCC_CONVAMOUNT should be numeric, etc.
- The DCC parameters provided by the merchant do not match the ones that were retrieved through the DCC API call
- The brand of the requested card does not match the one provided in the BRAND parameter
- The DCC option is not enabled in the merchant’s account
- The card provided is not eligible for DCC transactions
- Invalid currency provided through DCC_CONVCCY

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7 Appendix: Troubleshooting

The following section contains a non-exhaustive list of possible errors you can find in the NCERRORPLUS field, and in the "Error logs" section in your PostFinance Account:

- *Connection to API feature not allowed for this user*

You have sent us a request with only the PSPID/password or PSPID/administrative user/password as login details. You need to create a special API user to send requests to our server. An API is a user specifically designed so that an application can send automatic requests to the payment platform. Please refer to the User Manager documentation for more information on how to create an API user.

- *unknown order/1/i*

This error means that the IP address from which a request was sent is not an IP address the merchant had entered in the IP address field of the "Data and origin verification" tab, checks for DirectLink section of his Technical Information page. The merchant is sending us a request from a different server from the one(s) entered in the IP address field of the "Data and origin verification" tab, checks for DirectLink section.

- *unknown order/1/s*

This error message means that the SHASIGN sent in your transaction request differs from the SHASIGN calculated at our end using the order details and the additional string (password/ passphrase) entered in the SHA-IN Signature field in the "Data and origin verification" tab, checks for DirectLink section of the Technical Information page.

- *unknown order/0/s*

This error message means that the "SHASIGN" field in your request is empty, but an additional string (password/passphrase) has been entered in the SHA-1-IN Signature field in the "Data and origin verification" tab, "Checks for DirectLink" section of the Technical Information page, indicating you want to use a SHA signature with each transaction.

- *PSPID not found or not active*

This error means that the value you entered in the PSPID field does not exist in the respective environment (test or production) or the account has not yet been activated.

- *no <parameter> (for instance: no PSPID)*

This error means that the value you sent for the obligatory <parameter> field is empty. Note: ORDERID is the first field we check, so if you receive the error “no ORDERID”, it can also mean we did not receive any values at all.

- *<parameter> too long (for instance: CURRENCY too long)*

This error means that the value in your <parameter> field exceeds the maximum length.

- *amount too long or not numeric: ... OR AMOUNT not a number*

This error means that the amount you sent in the hidden fields either exceeds the maximum length or contains invalid characters such as ‘.’ (full stop) or ‘,’ (comma) for example.

- *not a valid currency : ...*

This error means that you sent a transaction with a currency code that is incorrect or does not exist.

- *The currency is not accepted by the merchant*

This error means that you sent a transaction in a currency that has not been registered in your account details.

- *ERROR, PAYMENT METHOD NOT FOUND FOR: ...*

This error means that the PM value you sent in your hidden fields does not match any of the payment methods selected in your account, or that the payment method has not been activated in your payment methods page.

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8 Appendix: List of Parameters to be included in SHA IN Calculation

ACCEPTANCE

ACCEPTURL

ADDMATCH

ADDRMATCH

AIACTIONNUMBER

AIAGIATA

AIAIRNAME

AIAIRTAX

AIBOOKIND*XX*

AICARRIER*XX*

AICHDET

AICLASS*XX*

AICONJTI

AIDEPTCODE

AIDESTCITY*XX*

AIDESTCITYL*XX*

AIEXTRAPASNAME*XX*

AIEYCD

AIFLDATE*XX*

AIFLNUM*XX*

AIGLNUM

AIINVOICE

AIIRST

AIORCITY*XX*

AIORCITYL*XX*

AIPASNAME

AIPROJNUM

AISTOPOV*XX*

AITIDATE

AITINUM

AITINUML*XX*

AITYPCH

AIVATAMNT

AIVATAPPL

ALIAS

ALIASOPERATION

ALIASUSAGE

ALLOWCORRECTION

AMOUNT

AMOUNT*XX*

AMOUNTHTVA

AMOUNTTVA

BACKURL

BATCHID

BGCOLOR

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BLVERNUM
BIN
BRAND
BRANDVISUAL
BUTTONBGCOLOR
BUTTONTXTCOLOR
CANCELURL
CARDNO
CATALOGURL
CAVV_3D
CAVVALGORITHM_3D
CERTID
CHECK_AAV
CIVILITY
CN
COM
COMPLUS
CONVCCY
COSTCENTER
COSTCODE
CREDITCODE
CUID
CURRENCY
CVC
CVCFLAG
DATA
DATATYPE
DATEIN
DATEOUT
DCC_COMMPERC
DCC_CONVAMOUNT
DCC_CONVCCY
DCC_EXCHRATE
DCC_EXCHRATETS
DCC_INDICATOR
DCC_MARGINPERC
DCC_REF
DCC_SOURCE
DCC_VALID
DECLINEURL
DEVICE
DISCOUNTRATE
DISPLAYMODE
ECI
ECI_3D
ECOM_BILLTO_POSTAL_CITY
ECOM_BILLTO_POSTAL_COUNTRYCODE
ECOM_BILLTO_POSTAL_COUNTY

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ECOM_BILLTO_POSTAL_NAME_FIRST
ECOM_BILLTO_POSTAL_NAME_LAST
ECOM_BILLTO_POSTAL_POSTALCODE
ECOM_BILLTO_POSTAL_STREET_LINE1
ECOM_BILLTO_POSTAL_STREET_LINE2
ECOM_BILLTO_POSTAL_STREET_NUMBER
ECOM_CONSUMERID
ECOM_CONSUMER_GENDER
ECOM_CONSUMEROGID
ECOM_CONSUMERORDERID
ECOM_CONSUMERUSERALIAS
ECOM_CONSUMERUSERPWD
ECOM_CONSUMERUSERID
ECOM_PAYMENT_CARD_EXPDATE_MONTH
ECOM_PAYMENT_CARD_EXPDATE_YEAR
ECOM_PAYMENT_CARD_NAME
ECOM_PAYMENT_CARD_VERIFICATION
ECOM_SHIPTO_COMPANY
ECOM_SHIPTO_DOB
ECOM_SHIPTO_ONLINE_EMAIL
ECOM_SHIPTO_POSTAL_CITY
ECOM_SHIPTO_POSTAL_COUNTRYCODE
ECOM_SHIPTO_POSTAL_COUNTY
ECOM_SHIPTO_POSTAL_NAME_FIRST
ECOM_SHIPTO_POSTAL_NAME_LAST
ECOM_SHIPTO_POSTAL_NAME_PREFIX
ECOM_SHIPTO_POSTAL_POSTALCODE
ECOM_SHIPTO_POSTAL_STREET_LINE1
ECOM_SHIPTO_POSTAL_STREET_LINE2
ECOM_SHIPTO_POSTAL_STREET_NUMBER
ECOM_SHIPTO_TELECOM_FAX_NUMBER
ECOM_SHIPTO_TELECOM_PHONE_NUMBER
ECOM_SHIPTO_TVA
ED
EMAIL
EXCEPTIONURL
EXCLPMLIST
EXECUTIONDATE*XX*
FACEXCL*XX*
FACTOTAL*XX*
FIRSTCALL
FLAG3D
FONTTYPE
FORCECODE1
FORCECODE2
FORCECODEHASH
FORCEPROCESS
FORCETP

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GENERIC_BL

GIROPAY_ACCOUNT_NUMBER

GIROPAY_BLZ

GIROPAY_OWNER_NAME

GLOBORDERID

GUID

HDFONTTYPE

HDTBLBGCOLOR

HDTBLTXTCOLOR

HEIGHTFRAME

HOMEURL

HTTP_ACCEPT

HTTP_USER_AGENT

INCLUDE_BIN

INCLUDE_COUNTRIES

INVDATE

INVDISCOUNT

INVLEVEL

INVORDERID

ISSUERID

IST_MOBILE

ITEM_COUNT

ITEMATTRIBUTES*XX*

ITEMCATEGORY*XX*

ITEMCOMMENTS*XX*

ITEMDESC*XX*

ITEMDISCOUNT*XX*

ITEMID*XX*

ITEMNAME*XX*

ITEMPRICE*XX*

ITEMQUANT*XX*

ITEMQUANTORIG*XX*

ITEMUNITOFMEASURE*XX*

ITEMVAT*XX*

ITEMVATCODE*XX*

ITEMWEIGHT*XX*

LANGUAGE

LEVEL1AUTHCPC

LIDEXCL*XX*

LIMITCLIENTSCRIPTUSAGE

LINE_REF

LINE_REF1

LINE_REF2

LINE_REF3

LINE_REF4

LINE_REF5

LINE_REF6

LIST_BIN

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LIST_COUNTRIES
LOGO
MAXITEMQUANT*XX*
MERCHANTID
MODE
MTIME
MVER
NETAMOUNT
OPERATION
ORDERID
ORDERSHIPCOST
ORDERSHIPMETH
ORDERSHIPTAX
ORDERSHIPTAXCODE
ORIG
OR_INVORDERID
OR_ORDERID
OWNERADDRESS
OWNERADDRESS2
OWNERCTY
OWNERTELNO
OWNERTELNO2
OWNERTOWN
OWNERZIP
PAIDAMOUNT
PARAMPLUS
PARAMVAR
PAYID
PAYMETHOD
PM
PMLIST
PMLISTPMLISTTYPE
PMLISTTYPE
PMLISTTYPEPMLIST
PMTYPE
POPUP
POST
PSPID
PSWD
RECIPIENTACCOUNTNUMBER
RECIPIENTDOB
RECIPIENTLASTNAME
RECIPIENTZIP
REF
REFER
REFID
REFKIND
REF_CUSTOMERID

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REF_CUSTOMERREF
REGISTRED
REMOTE_ADDR
REQGENFIELDS
RTIMEOUT
RTIMEOUTREQUESTEDTIMEOUT
SCORINGCLIENT
SETT_BATCH
SID
STATUS_3D
SUBSCRIPTION_ID
SUB_AM
SUB_AMOUNT
SUB_COM
SUB_COMMENT
SUB_CUR
SUB_ENDDATE
SUB_ORDERID
SUB_PERIOD_MOMENT
SUB_PERIOD_MOMENT_M
SUB_PERIOD_MOMENT_WW
SUB_PERIOD_NUMBER
SUB_PERIOD_NUMBER_D
SUB_PERIOD_NUMBER_M
SUB_PERIOD_NUMBER_WW
SUB_PERIOD_UNIT
SUB_STARTDATE
SUB_STATUS
TAAL
TAXINCLUDED*XX*
TBLBGCOLOR
TBLTXTCOLOR
TID
TITLE
TOTALAMOUNT
TP
TRACK2
TXTBADDR2
TXTCOLOR
TXTOKEN
TXTOKENTXTOKENPAYPAL
TYPE_COUNTRY
UCAF_AUTHENTICATION_DATA
UCAF_PAYMENT_CARD_CVC2
UCAF_PAYMENT_CARD_EXPDATE_MONTH
UCAF_PAYMENT_CARD_EXPDATE_YEAR
UCAF_PAYMENT_CARD_NUMBER
USERID

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USERTYPE
VERSION
WBTU_MSISDN
WBTU_ORDERID
WEIGHTUNIT
WIN3DS
WITHROOT

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