

A photograph of two women sitting at a wooden desk in a bright, creative office. The woman on the left has long, curly brown hair and is wearing a yellow long-sleeved top. She is smiling and looking towards the woman on the right. The woman on the right has short, dark curly hair and is wearing a grey sweater. She is holding a pencil and looking at a document on the desk. The desk is cluttered with papers, a laptop, a glass of water, and a yellow mug. The background wall is white and decorated with several framed photographs and posters. The overall atmosphere is professional and collaborative.

# Nordea Connect

Server-to-Server API Reference

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# Nordea Connect

## 1 Introduction

This document describes integration process and server to server interface between a web shop (later a shop system) and Nordea Connect E-Commerce System (later the payment system). The interface is designed to operate over HTTPS. Authentication of both systems and verification of message integrity is implemented using digital signatures.

## 2 Interface Description

### 2.1 Transport

Transport between shop system and payment system is carried out using POST operations over HTTPS (Hypertext Transfer Protocol Secure) which is combination of HTTP (Hypertext Transfer Protocol) and TLS (transport layer security). Only server side certificate granted by public certificate authorities are used in transport layer security. Post and response contents are encoded with 'application/x-www-form-urlencoded'-encoding with UTF-8 character set.

### 2.2 Security

Digital signatures are used to authenticate participating systems and to verify message integrity. Messages are signed with two different alternative algorithms to allow for a wide variety of technical platforms to be supported. The public key size is 1024.

#### 2.2.1 Calculating Digital Signature from Form Parameters

Form parameter name value pairs are sorted by key according the following collation: "0123456789- \_abcdefghijklmnopqrstuvwxyz". The signed content is created from this value list according to the following format:

##### 2.2.1.1 Format of the Signed Parameter Content

Note: If ';' occurs in value it will be replaced with ';' in signature content string. This applies to both requests and responses.

<key1>=<value1>;<key2>=<value2>;...<keyN=valueN>;

##### 2.2.1.2 Example of the Signed Parameter Content

i-f-1-3\_order-currency-code=978;...;

#### 2.2.2 Digital Signature Types

Current supported types are as follows:

Signature Number	Algorithm	Query Parameter
1	RSA with SHA-1	s-t-256-256_signature-one
2	RSA with SHA-512	s-t-256-256_signature-two

There are two separate query parameters in all POSTs for the above signature types.

### 2.3 Exchanging Keys

Merchants needs to generate a 1024 bit long RSA private – public key pair and configure the public key on Nordea Connect Merchant Portal. The key pair can be generated with Nordea Connect Key Generator available at <https://www.nordeaconnect.com/#for-developers> or any key pair generator of own choice.

The public key has to be configured in Nordea Connect Merchant Portal under eCommerce -> Merchant Settings, please see Nordea Connect Merchant Portal User Guide for instructions. The Nordea Connect Public Key is also available under the eCommerce -> Merchant Settings tab.

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## 2.4 Checking Response Fields

It is important to do the following checks on the responses:

- s-f-1-30\_operation matches to request.
- s-t-256-256\_signature-one and/or s-t-256-256\_signature-two are valid.
- s-f-1-30\_error-message is empty (otherwise it means that the operation failed)
- l-f-1-20\_request-id (it is also important to use unique ids in requests)

The above checks are necessary to validate that the response is from Nordea Connect, that the operation is correct and successful. It is also recommended to include additional checks, such as checking the format and contents of all response fields and values that are known to the web shop.

## 3 API Operations

All requests to Nordea Connect payment system needs to include the General Request parameters. Depending on the operations requested, another set of mandatory parameters needs to be included.

If a mandatory parameter is missing from request the request Nordea Connect Payment System will not respond to the request.

### 3.1 General Request and Response Header Fields

These parameters are needs to be included in all requests.

#### 3.1.1 Request Header

Name	Format	Opt	Example Value	Title	Version	Description
s-f-1-30_operation	String with length of 1-30 characters.	No	is-available	Operation	3	The operation which this request is requesting to be invoked.
l-f-1-20_request-id	64 bit signed integer value formatted as a string with 1-20 numeric characters.	No	100	Request ID	3	Unique request identifier per merchant agreement.
t-f-14-19_request-timestamp	yyyy-MM-dd HH:mm:ss	No	2012-06-13 16:00:02	Request Timestamp	3	Timestamp defining the request time from web shop point of view.
s-f-1-36_merchant-agreement-code	String with length of 1-36 characters.	No	023423423345	Merchant Agreement Code	3	Textual code of the merchant agreement.
s-f-1-30_software	String with length of 1-30 characters.	No	My Shop Software	Software	3	Name of the web shop software (Merchant determines)
s-f-1-10_software-version	String with length of 1-10 characters.	No	1.0.1	Software Version	3	Version of the web shop software.
i-f-1-11_interface-version	String with length of 1-11 numeric characters.	No	3	Interface Version	3	Version of the payment interface.
s-t-256-256_signature-one	String with length of 256-512 characters.	Yes*	FA12...FF	Signature One	3	128 byte signature converted to upper case hexadecimal string. Parameter name includes 256 due to backwards compatibility issues.
s-t-256-256_signature-two	String with length of 256-512 characters.	Yes*	FA12...FF	Signature Two	3	128 byte signature converted to upper case hexadecimal string. Parameter name includes 256 due to backwards compatibility issues.

\*One of the signatures needs to be present.

## 3.1.2 Response Header

Name	Format	Opt	Example Value	Title	Version	Description
s-f-1-30_operation	String with length of 1-30 characters.	No	is-available	Operation	3	The operation which was requested to be invoked.
l-f-1-20_response-id	64 bit signed integer value formatted as a string with 1-20 numeric characters.	No	100	Response ID	3	Unique response identifier per merchant agreement.
t-f-14-19_response-timestamp	yyyy-MM-dd HH:mm:ss	No	2012-06-13 16:00:02	Response Timestamp	3	Timestamp defining the response time from payment system point of view.
l-f-1-20_request-id	64 bit signed integer value formatted as a string with 1-20 numeric characters.	No	100	Request ID	3	Unique request identifier per merchant agreement.
s-f-1-30_error-message	String with length of 1-30 characters.	Yes	No such merchant agreement.	Error message	3	The error which occurred.
s-f-1-10_software-version	String with length of 1-10 characters.	No	1.0.1	Software Version	3	Version of the web shop software.
i-f-1-11_interface-version	String with length of 1-11 numeric characters.	No	3	Interface Version	3	Version of the payment interface.
s-t-256-256_signature-one	String with length of 256-512 characters.	Yes	FA12...FF	Signature One	3	128 byte signature converted to upper case hexadecimal string. Parameter name includes 256 due to backwards compatibility issues.
s-t-256-256_signature-two	String with length of 256-512 characters.	Yes	FA12...FF	Signature Two	3	128 byte signature converted to upper case hexadecimal string. Parameter name includes 256 due to backwards compatibility issues.

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## 3.2 Cancel Payment (cancel-payment)

This operation is used for cancelling a deferred payment that is not yet debited. If a payment is already completed, please use the Refund operations instead.

### 3.2.1 Additional Request Fields

Name	Format	Opt	Example Value	Title	Version	Description
l-f-1-20_transaction-number	Integer value formatted as string with 1-20 numeric characters.	No	123	Transaction Number	5	Transaction number identifying the payment transaction. Assigned by payment system.
s-f-1-30_payment-method-code	String with length of 1-30 characters.	No	visa	Payment Method	5	String key identifying the payment method used.
s-t-1-1024_dynamic-feedback	String with length of 1-1024 chars.	Yes	s-t-1-30_card-type, s-t-1-4_error-code, l-f-1-20_dynamic-reference-number	Dynamic feedback	5	List of parameters to be added to response (if available).

### 3.2.2 Additional Response Fields

Name	Format	Opt	Example Value	Title	Version	Description
s-f-1-30_payment-result-code	String with length of 1-30 characters.	No	success	Payment Result Code	5	Code identifying status of the cancel payment
l-f-1-20_transaction-number	Integer value formatted as string with 1-20 numeric characters.	No	123	Transaction Number	6	Unique number from identifying the payment transaction.
s-t-1-30_card-type	String with length of 1 to 30.	Yes	visa	Card type	5	Card type.
s-t-1-4_error-code	String with length of 1 to 4.	Yes	H002	Error code	5	Error code, generated by Sales Connector (Hxxx) or received from acquirer (Bxxx).
l-f-1-20_dynamic-reference-number	Integer value formatted as string with 1-20 numeric characters.	Yes	23452345	Dynamic reference number	5	Dynamic reference number.

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## 3.3 Is Available (is-available)

This operation is only supposed to be used to verify the connectivity between your shop and the Nordea Connect system. It is recommended to be used when you first integrate your shop or when you bring it online after maintenance shutdown. It tests connectivity, signatures and the validity of the merchant agreement.

It should not to be used as an ongoing health check operation.

### 3.3.1 Additional Response Fields

Name	Format	Opt	Example Value	Title	Version	Description
i-f-1-1_availability	Integer value formatted as string with 1 numeric character.	No	0	Server Interface Access Level	3	0 = No access to Server Interface has been granted by Nordea Connect. 1 = Express level access to Server Interface. 2 = Advanced level access to Server Interface. If you receive value 0 then contact Nordea Connect in order to activate Server Interface access.



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## 3.4 List Payment Methods (list-payment-methods)

This operation lists all available payment methods and their amount limits for the merchant agreement. This operation can be used for Merchant who wants to have a dynamic checkout page. If a static checkout page will be used, this operation can be ignored.

### 3.4.1 Additional Request Fields

Name	Format	Opt	Example Value	Title	Version	Description
i-f-1-3_currency-code	String with length of 1-3 numeric characters.	No	978	Currency Code	3	Numeric ISO 4217 currency code.

### 3.4.2 Additional Response Fields

Name	Format	Opt	Example Value	Title	Version	Description
s-t-1-30_payment-method-code-<N>	String with length of 1-30 characters.	Yes	visa	Payment Method	3	The payment method code. Value can be found in Appendix (please see the end of this document)
l-t-1-20_payment-method-min-<N>	64 bit signed integer value formatted as a string with 1-20 numeric characters.	Yes	0	Payment Method Minimum Amount	3	Minimum amount for the payment method.
l-t-1-20_payment-method-max-<N>	64 bit signed integer value formatted as a string with 1-20 numeric characters.	Yes	10000	Payment Method Maximum Amount	3	Maximum amount for the payment method.
s-t-1-30_payment-method-type-<N>	String with length of 1-40 characters.	Yes	VISA	Payment Method Type	3	Type of the payment method. Value can be found in Appendix (please see the end of this document)

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## 3.5 List Saved Payment Methods (list-saved-payment-methods)

This operation lists all saved **cards** for a given buyer.

### 3.5.1 Additional Request Fields

Name	Format	Opt	Example Value	Title	Version	Description
s-f-1-30_buyer-first-name	String with length of 1-30 characters.	No	John	First Name	3	First name of the buyer.
s-f-1-30_buyer-last-name	String with length of 1-30 characters.	No	Smith	Last Name	3	Last name of the buyer.
s-t-1-30_buyer-phone-number	String with length of 0,1-30 characters.	Yes	+358 40 234234234	Phone Number	3	Phone number of the buyer.
s-f-1-100_buyer-email-address	String with length of 1-100 characters.	No	john.smith@gmail.com	Email Address	3	Email address of the buyer.
s-t-1-255_buyer-external-id	String with length of 1-255 characters.	Yes	213123123	Buyer External Identifier	3	Identifier of the buyer assigned by web shop. Not recommended to be used. Will be replaced identification mechanism based on other mandatory user details.
s-t-1-30_delivery-address-line-one	String with length of 0,1-30 characters.	Yes	Street 31	Delivery Address Line #1	3	Line one of the delivery address.
s-t-1-30_delivery-address-line-two	String with length of 0,1-30 characters.	Yes	Apartment 2	Delivery Address Line #2	3	Line two of the delivery address.
s-t-1-30_delivery-address-line-three	String with length of 0,1-30 characters.	Yes	Room 3	Delivery Address Line #3	3	Line three of the delivery address.
s-t-1-30_delivery-address-city	String with length of 0,1-30 characters.	Yes	Helsinki	Delivery Address City	3	City of the delivery address.
s-t-1-30_delivery-address-postal-code	String with length of 0,1-30 characters.	Yes	00270	Delivery Address Postal Code	3	Postal code of the delivery address.
i-t-1-3_delivery-address-country-code	String with length of 0,1-3 characters.	Yes	246	Delivery Address Country Code	3	Numeric ISO 3166 country code of the delivery address.
s-t-1-30_recurring-payment-subscription-code	String with length of 0,1-30 characters.	Yes	123	Recurring Payment Subscription Code	3	Subscription code for recurring payment. When given lists only saved payment methods related to subscription.

### 3.5.2 Additional Response Fields

Name	Format	Opt	Example Value	Title	Version	Description
s-t-1-30_payment-method-code-<N>	String with length of 1-30 characters.	Yes	visa	Payment Method	3	The payment method code.
l-t-1-20_payment-method-id-<N>	64 bit signed integer value formatted as a string with 1-20 numeric characters.	Yes	2426425	Payment Method ID	3	ID of the saved payment method.
s-t-1-30_payment-method-title-<N>	String with length of 1-30 characters.	Yes	455566*****8887	Payment Method Title	3	The title of payment method.
s-t-1-6_card-expected-validity-<N>	String with length of 1-6 characters	Yes			4	
s-t-1-1024_encrypted_payment_method_details	String with length of 1-1024 characters.	Yes			5	<PAN>, converted to upper case hexadecimal string. This field will contain the encrypted PAN

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## 3.6 Remove Saved Payment Method (remove-saved-payment-method)

This operation removes the saved **card** for the given id.

### 3.6.1 Additional Request Fields

Name	Format	Opt	Example Value	Title	Version	Description
l-t-1-20_saved-payment-method-id	64 bit signed integer value formatted as a string with 1-20 numeric characters.	No	242	Saved Payment Method ID	3	ID of the saved payment method.
s-t-1-256_token	String with length of 1-256 characters.	Yes	1234567890	Token	5	The token that was generated by Nordea Connect. Although the type is String, valid values are the ones that can be parsed as Long. If this parameter is set with token id, then token associated with the payment method is also removed.

### 3.6.2 Additional Response Fields

Name	Format	Opt	Example Value	Title	Version	Description
l-t-1-10_removed-count	Long integer value formatted as string with 1-10 numeric characters.	Yes	1	Removed Count	3	0 = Payment method not removed, 1 = Payment method removed

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## 3.7 Process Payment (process-payment)

This operation is for processing **card** payments.

### 3.7.1 Additional Request Fields

Name	Format	Opt	Example Value	Title	Ver.	Description
locale-f-2-5_payment-locale	String with length of 2-5 characters.	No	fi_FI	Locale	3	The language locale used by buyer.
t-f-14-19_payment-timestamp	yyyy-MM-dd HH:mm:ss	No	2010-01-01 01:01:32	Payment Timestamp	3	UTC timestamp defining the payment start time from web shop point of view. If payment is retried then payment timestamp has to differ from first payment for same order.
s-f-1-36_order-number	String with length of 1-36 characters.	No	123	Order Number	3	Textual order number assigned by shop system. Valid characters are a-z, A-Z, 0-9 and minus sign.
t-f-14-19_order-timestamp	yyyy-MM-dd HH:mm:ss	No	2010-01-01 01:01:32	Order Timestamp	3	UTC timestamp defining the orders time from web shop point of view.
s-t-1-36_order-note	String with length of 0 or 1-36 characters.	Yes	Example note.	Order Note	3	Custom parameter reserved for shop system to use.
i-f-1-3_order-currency-code	String with length of 1-3 numeric characters.	No	978	Currency Code	3	Numeric ISO 4217 currency code.
l-f-1-20_order-gross-amount	64 bit signed integer value formatted as a string with 1-20 numeric characters.	No	100	Gross Amount	3	Total amount including taxes and discount with two decimal precision. Example value corresponds to 1 Currency Unit (e.g. 1 EUR).
s-f-1-30_buyer-first-name	String with length of 1-30 characters.	No	John	First Name	3	First name of the buyer.
s-f-1-30_buyer-last-name	String with length of 1-30 characters.	No	Smith	Last Name	3	Last name of the buyer.
s-t-1-30_buyer-phone-number	String with length of 0,1-30 characters.	Yes	+358 40 234234	Phone Number	3	Phone number of the buyer.
s-f-1-100_buyer-email-address	String with length of 1-100 characters.	No	john.smith@gmail.com	Email Address	3	Email address of the buyer.
s-t-1-255_buyer-external-id	String with length of 1-255 characters.	Yes	213123123	Buyer External Identifier	3	Identifier of the buyer assigned by web shop. Not recommended to be used. Will be replaced identification mechanism based on other mandatory user details.
s-t-1-30_delivery-address-line-one	String with length of 0,1-30 characters.	Yes	Street 31	Delivery Address Line #1	3	Line one of the delivery address.
s-t-1-30_delivery-address-line-two	String with length of 0,1-30 characters.	Yes	Apartment 2	Delivery Address Line #2	3	Line two of the delivery address.
s-t-1-30_delivery-address-line-three	String with length of 0,1-30 characters.	Yes	Room 3	Delivery Address Line #3	3	Line three of the delivery address.
s-t-1-30_delivery-address-city	String with length of 0,1-30 characters.	Yes	Helsinki	Delivery Address City	3	City of the delivery address.
s-t-1-30_delivery-address-postal-code	String with length of 0,1-30 characters.	Yes	00270	Delivery Address Postal Code	3	Postal code of the delivery address.
i-t-1-3_delivery-address-country-code	String with length of 0,1-3 characters.	Yes	246	Delivery Address Country Code	3	Numeric ISO 3166 country code of the delivery address.
l-t-1-20_saved-payment-method-id	64 bit signed integer value formatted as a	Yes	242	Payment Method ID	3	ID of the saved payment method. Parameter can be

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	string with 1-20 numeric characters.					omitted only with parameters i-t-1-1_3ds-secure-mode and s-t-256-512_encrypted-card-details. This is allowed only for merchant that is PCI enabled.
i-t-1-1_3ds-secure-mode	Integer with value 1 or 2	Yes	1	3D secure mode	3	Integer defining 3D secure operation. This is allowed only for merchant that is PCI enabled.
s-f-256-512_encrypted-card-details	String with length of 256-512 characters.	Yes	FA12...FF	Encrypted card details	3	<PAN>=<MMyyyy> padded with PKCS #1 padding and RSA encrypted and converted to upper case hexadecimal string. This can be used only with parameter i-t-1-1_3ds-secure-mode, which is allowed only for merchant that is PCI enabled.
s-t-1-256_http-accept	String with length of 0,1-256 characters.	Yes	*/*	Http-accept	3	Http-client parameter. Used only in 3D secure mode.
s-t-1-256_http-user-agent	String with length of 0,1-256 characters.	Yes	Mozilla/5.0 (Windows NT 6.1; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/57.0.2987.133 Safari/537.36	Http-user-agent	3	Http-client parameter. Used only in 3D secure mode.
i-t-1-1_recurring-payment	Integer with value 0 or 1.	Yes	1	Recurring Payment	3	Integer defining that payment is recurring payment. 0) Not recurring payment. 1) A recurring payment. It must be noted that the recurring subscription must be created via Payment interface.
i-t-1-1_deferred-payment	Integer with value 0 or 1.	Yes	1	Deferred Payment	3	Integer defining that payment is deferred payment. 0) Not deferred payment. Both payment authorization and debiting will be done. 1) Deferred payment. Only authorization will be done.
s-t-1-4_card-security-code	String with length of 1-4 characters.	Yes	123	Card Security Code	3	The card security code. Must not be used unless separately agreed.
i-t-1-1_register-token	Integer with value 0 or 1.	Yes	1	Register Token	3	Integer defining if a token should be registered for the card that is used.
i-t-1-1_token-extra-info	Integer with value 0 or 1	Yes	1	Request extra token info	5	Integer defining if extra info (masked pan/ expiration date) should be returned.
i-t-1-1_token-scope	Integer with value 1,2,3	Yes	1	Token scope	5	Integer defining which scope token should belong to 1 = Terminal Group, 2 = Company, 3 = Company Group.
s-t-1-256_token	String with length of 0 or 1-256 characters.	Yes	100	Token	6	Token that was registered for the card that was used.
s-t-1-1024_dynamic-feedback	String with length of 1-1024 chars.	Yes	s-t-1-6_authorization-number, l-f-1-20_dynamic-reference-number, s-t-1-30_card-	Dynamic feedback	5	List of parameters to be added to response (if available).

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			type, s-t-1-6_card- expiry-date, s-t-1-4_error- code, i-t-1-2_card-3ds- auth-status, i-t-1-1_card-3ds- enrollment- status, s-t-1-1_3ds- charge-back, i-t-1- 3_customer-ip- country, i-t-1-3_card- issued-country, i-t-2-2_card-pan- last2, i-t-6-6_card-pan- first6, s-t-1-256_token- two-way, s-t-1-8_card- product (applies only to specific issuer), i-t-4-4_card-pan- last4, s-t-2-2_account- item-type, i-t-1-1_payment- benefit			
s-f-1-30_payment- method-code	String with length of 1- 30 characters.	No	visa	Payment Method	6	String key identifying the payment method used.
s-t-1- 2048_payment- token-data	String with length of 1- 2048 characters	Yes	fPZHf....S2GhIQ =	Payment token data	5	Payment data dictionary (encrypted payment data), Base64 encoded as a string.
s-t-1-32_payment- token-version	String with length of 1- 32 characters	Yes	EC_v1	Payment token version	5	Token version information. Supported only EC_v1
s-t-1- 8192_payment- token-signature	String with length of 1- 8192 characters	Yes	MIAGCS....F4w AAAAAAAAA==	Payment token signature	5	Signature of the payment and header data. The signature includes the signing certificate, its intermediate CA certificate and information about the signing algorithm
s-t-1-512_payment- token- header-ephemeral- pk	String with length of 1- 512 characters	Yes	MFkwE....ihpoM 9aog==	Payment token header ephemeral PK	5	X.509 encoded key bytes, Base64 encoded as a string.
s-t-1-256_payment- token- header-application- data	String with length of 1- 256 characters	Yes	L+t9VafnB....KA hmBqcz0	Payment token header application data	5	SHA-256 hash of the applicationData property of the original PKPaymentRequest object. Hex encoded as string.
s-t-1-256_payment- token- header-pk-hash	String with length of 1- 256 characters	Yes	L+t9VafnB....KA hmBqcz0=	Payment token header PK hash	5	SHA-256 hash of X-509 encoded PK of the merchant, Base64 encoded as a string.
s-t-1-256_payment- token- header-transaction- id	String with length of 1- 256 characters	Yes	c9bbaca178....e d81fb1a1	Payment token header transaction ID	5	Transaction identifier, generated on the device.
i-t-1-1_partial- approval	Integer with value 0 or 1.	Yes	1	Partial Approval	5	Integer defining that payment is allowed to be approved partially. 0) Partial approval not allowed. 1) Partial approval allowed

## 3.7.2 Additional Basket Parameters

Basket items (0-50) are supported but not mandatory. By adding basket parameters, the individual items will be shown in the Merchant Portal and can be used to make partial refunds easier.

Name	Format	Opt	Example Value	Title	Ver.	Description
s-t-1-30_bi-name-<N>	String with length of 1-30 characters.	Yes	Red Apple	Item Name	3	Item name of the Nth basket item.
l-t-1-20_bi-unit-cost-<N>	64 bit signed integer value formatted as a string with 1-20 numeric characters. Must not be present if unit gross cost is used.  Must be filled if unit gross cost is not filled. Must not be filled if it is.	Yes	100	Item Unit Cost	3	Unit cost with two decimal precision but without discount and tax. Example value corresponds to 1 Currency Unit (e.g. 1 EUR)..  NOTE: usage of unit cost instead of unit gross cost can create rounding errors, when refunding individual items.  If you for example have gross cost of 89.00 EUR, there is no corresponding unit cost with discount 0% and GST 24%. 77.17 EUR and 24% GST is 88.99 EUR, but 77.18 EUR lead to gross cost of 89.01 EUR.  Thus if consumer buys 2 items with gross cost of 89.00 and returns only one he will be returned 88.99 EUR. (If he returns both then the entire row will be refunded he will get full refund.)  The solution to this problem is either to use unit gross cost, or calculate unit cost first and calculate gross cost by adding GST, and not by calculating GST from unit gross cost, because if one does it this way, there will be rounding errors unless prices are selected not to have them, since EURO and other currencies are finitely dividable.
l-t-1-20_bi-unit-gross-cost-<N>	64 bit signed integer value formatted as a string with 1-20 numeric characters.  Must be filled if unit cost is not filled. Must not be filled if it is.	yes	124	Item Unit Gross Cost	3	Unit cost including tax and discount with two decimal precision. Example value corresponds 1 Currency Unit (e.g. 1 EUR), 24% vat and 0% discount.
i-t-1-11_bi-unit-count-<N>	Integer value formatted as string with 1-11 numeric characters.	Yes	1	Item Unit Count	3	Number of units in the item.
l-t-1-20_bi-gross-amount-<N>	64 bit signed integer value formatted as a string with 1-20 numeric characters.	Yes	100	Item Gross Amount	3	Item gross amount including tax and discount with two decimal precision. Example value corresponds to 1 Currency Unit (e.g. 1 EUR).
l-t-1-20_bi-net-amount-<N>	64 bit signed integer value formatted as a string with 1-20 numeric characters.	Yes	100	Item Net Amount	3	Item net amount calculated from unit cost times unit count with two decimal precision. Example value corresponds to 1 Currency Unit (e.g. 1 EUR).

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i-t-1-4_bi-vat-percentage-<N>	Integer formatted as string with 0,1-4 numeric characters	Yes	2250	Item VAT Percentage	3	Item value added tax percentage with two decimal precision. Example value corresponds to 22,5%. Currently, cannot be an empty string nor missing.
i-t-1-4_bi-discount-percentage-<N>	Integer formatted as string with 0,1-4 numeric characters	Yes	550	Item Discount Percentage	3	Item discount percentage tax with two decimal precision. Example value corresponds to 5,5%. Currently, cannot be an empty string nor missing.

## 3.7.3 Additional Response Fields

Name	Format	Opt	Example Value	Title	Version	Description
l-f-1-20_transaction-number	Integer value formatted as string with 1-20 numeric characters.	No	123	Transaction Number	3	Transaction number identifying the payment transaction. Assigned by payment system.
s-f-1-30_payment-method-code	String with length of 1-30 characters.	No	visa	Payment Method	3	String key identifying the payment method used.
s-f-1-36_order-number	String with length of 1-36 characters.	No	123	Order Number	3	Textual order number assigned by shop system. Valid characters are a-z, A-Z, 0-9 and minus sign.
s-t-1-36_order-note	String with length of 1-36 characters.	Yes	Example note.	Order Note	3	Custom parameter reserved for shop system to use echoed back to shop.
t-f-14-19_order-timestamp	yyyy-MM-dd HH:mm:ss	No	2010-01-01 01:01:32	Order Timestamp	3	UTC timestamp defining the orders time from web shop point of view.
i-f-1-3_order-currency-code	String with length of 1-3 numeric characters.	No	978	Currency Code	3	Numeric ISO 4217 currency code.
l-f-1-20_order-gross-amount	64 bit signed integer value formatted as a string with 1-20 numeric characters.	No	100	Gross Amount	3	Gross amount including tax with two decimals
s-t-1-26_filing-code	String with length of 1-26 characters.	Yes	1234567890	Filing code	3	Filing code of the transaction
s-t-1-256_token	String with length of 0 or 1-256 characters.	Yes	100	Token	3	Token that was registered for the card that was used.
s-t-10-10_token-expiration-date	yyyy-MM-dd	Yes	2010-01-01	Token expiration date	5	Token expiration date
s-t-1-36_token-masked-pan	String with length of 0 or 1-36 characters.	Yes	123456*****000 0	Masked pan	5	Masked pan used to generate token
s-t-1-6_authorization-number	String with length of 1 to 6 characters.	Yes	123456	Authorization id.	5	A reference provided by the authorizing institution. Only required in response messages and will only be present where the transaction is approved.
l-f-1-20_dynamic-reference-number	Integer value formatted as string with 1-20 numeric characters.	Yes	23452345	Dynamic reference number	5	Dynamic reference number.
s-t-1-30_card-type	String with length of 1 to 30.	Yes	visa	Card type	5	Card type.



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s-t-1-6_card-expiry-date	String with length of 1 to 6.	Yes	042015	Expiry date	5	Expiry date of the card in format MMDDYY.
s-t-1-4-error-code	String with length of 1 to 4.	Yes	H002	Error code	5	Error code, generated by Sales Connector (Hxxx) or received from acquirer (Bxxx).
i-t-2-2_card-3ds-auth-status	String with length of 2.	Yes	03	3DS authorization status	5	Status of 3DS authorization.(Note: The value returned is String.)
i-t-1-1_card-3ds-enrollment-status	String with length of 1.	Yes	1	3DS enrollment status	5	Electronic Commerce Indicator (ECI) value is returned by Directory Server to indicate the authentication results of your customer's credit card payment on 3D Secure.
s-t-1-8192_3ds-md	String with length of 1 to 8192.	Yes	MD_0_____12302...c3	MD token for 3DS authentication	3	One time token for 3D secure authentication. Used only in 3D secure mode.
s-t-1-8192_3ds-pareq	String with length of 1 to 8192.	Yes	eJxdUV...lg	PaReq	3	One time token for 3D secure authentication. Used only in 3D secure mode.
s-t-1-256_3ds-acs-url	String with length of 1 to 8192.	Yes	https://3ds-acs.test.modirum.com/mdpayments/pareq	3DS authentication URL	3	Forward URL for 3D secure authentication. Used only id 3D secure mode.
s-t-1-1_3ds-charge-back	String with length of 1.	Yes	N	3DS charge back	5	3DS charge-back (J= 3DS, N=CVV after attempt to 3DS, P=only CVV).
i-t-1-3_customer-ip-country	String with length of 1 to 3.	Yes	233	Estonia	5	Country code of the customer (resolved from customer ip address).
i-t-1-3_card-issued-country	String with length of 1 to 3.	Yes	40	Austria	5	Code of country which issued the card.
i-t-2-2_card-pan-last2	String of digits with length of 2.	Yes	11	Last two digits on the card	5	Last 2 digits of the card used to make the payment.
i-t-6-6_card-pan-first6	String of digits with length of 6.	Yes	453288	First six digits on the card	5	First 6 digits of the cars used to make the payment.
s-t-1-256_token-two-way	String with length of 1 to 256.	Yes	100	Token	5	Token that was registered for the card that was used.
s-t-1-8_card-product	String with length of 1 to 8.	Yes	debit	Card product	5	Card product type (applied only to specific issuer).
i-t-4-4_card-pan-last4	String with length of 4	yes	1111	Last four digits of the card	5	Last 4 digits of the card (PAN or DPAN) used to make the payment
i-t-1-20_authorized-amount	64 bit signed integer value formatted as a string with 1-20 numeric characters.	Yes	100	Authorized Amount	5	Partially approved transaction amount
i-t-1-1_payment-benefit	integer value either zero or one	Yes	0	SOK Payment Benefit value	5	If the card is having SOK Payment benefit.
s-t-2-2_account-item-type	String value	Yes	visa	Account type	5	Card Account type

## 3.8 Debit Payment (debit-payment)

This operation triggers a debit for a deferred payment.

In some cases the Merchant might only want to authorize a payment when calling the process payment. In those cases, the debit payment operation is called for debiting the previously authorized funds.

### 3.8.1 Additional Request Fields

Name	Format	Opt	Example Value	Title	Version	Description
l-f-1-20_transaction-number	Integer value formatted as string with 1-20 numeric characters.	No	123	Transaction Number	3	Transaction number identifying the payment transaction. Assigned by payment system.
s-f-1-30_payment-method-code	String with length of 1-30 characters.	No	visa	Payment Method	3	The payment method code.
s-t-1-36_order-note	String with length of 0 or 1-36 characters.	Yes	Example note.	Order Note	3	Custom parameter reserved for shop system to use.
i-f-1-3_order-currency-code	String with length of 1-3 numeric characters.	No	978	Currency Code	3	Numeric ISO 4217 currency code.
l-f-1-20_order-gross-amount	64 bit signed integer value formatted as a string with 1-20 numeric characters.	No	100	Gross Amount	3	Total amount including taxes and discount with two decimal precision. Example value corresponds to 1 Currency Unit (e.g. 1 EUR).

### 3.8.2 Additional Basket Parameters

Basket items (0-50) are supported but not mandatory. By adding basket parameters, the individual items will be shown in the Merchant Portal and can be used to make partial refunds easier.

### 3.8.3 Additional Response Fields

Name	Format	Opt	Example Value	Title	Version	Description
l-f-1-20_transaction-number	Integer value formatted as string with 1-20 numeric characters.	No	123	Transaction Number	3	Transaction number identifying the payment transaction. Assigned by payment system.
s-f-1-30_payment-method-code	String with length of 1-30 characters.	No	visa	Payment Method	3	String key identifying the payment method used.
i-f-1-3_order-currency-code	String with length of 1-3 numeric characters.	No	978	Currency Code	3	Numeric ISO 4217 currency code.
l-f-1-20_order-gross-amount	64 bit signed integer value formatted as a string with 1-20 numeric characters.	No	100	Gross Amount	3	Gross amount including tax with two decimals

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## 3.9 Refund Payment (refund-payment)

This operations refunds or partially refunds a payment. Refund is supported for Card Payments, ePayments and Mobile Payments.

### 3.9.1 Additional Request Fields

Name	Format	Opt	Example Value	Title	Version	Description
l-f-1-20_transaction-number	Integer value formatted as string with 1-20 numeric characters.	No	123	Transaction Number	3	Transaction number identifying the payment transaction. Assigned by payment system.
s-f-1-30_payment-method-code	String with length of 1-30 characters.	No	visa	Payment Method	3	The payment method code.
i-f-1-3_refund-currency-code	String with length of 1-3 numeric characters.	No	978	Currency Code	3	Numeric ISO 4217 currency code.
l-f-1-20_refund-amount	64 bit signed integer value formatted as a string with 1-20 numeric characters.	No	100	Refund Amount	3	Amount to refund. Example value corresponds to 1 Currency Unit (e.g. 1 EUR).
s-t-1-36_order-note	String with length of 0 or 1-36 characters.	Yes	Example note.	Order Note	3	Custom parameter reserved for shop system to use.
s-t-1-1024_dynamic-feedback	String with length of 1-1024 chars.	Yes	s-t-1-6_authorization-number, l-f-1-20_dynamic-reference-number, s-t-1-30_card-type, s-t-1-6_card-expiry-date, s-t-1-4_error-code, i-t-1-2_card-3ds-auth-status, i-t-1-1_card-3ds-enrollment-status, s-t-1-1_3ds-charge-back, i-t-1-3_customer-ip-country, i-t-1-3_card-issued-country, i-t-2-2_card-pan-last2, i-t-6-6_card-pan-first6, s-t-1-256_token-two-way, s-t-1-8_card-product (applies only to specific issuer)	Dynamic feedback	5	List of parameters to be added to response (if available).

### 3.9.2 Additional Basket Parameters

Basket items (0-50) are supported but not mandatory. By adding basket parameters, the individual items will be shown in the Merchant Portal and can be used to make partial refunds easier.

### 3.9.3 Additional Response Fields

Name	Format	Opt	Example Value	Title	Version	Description
l-f-1-20_transaction-number	Integer value formatted as string with 1-20 numeric characters.	No	123	Transaction Number	3	Unique number identifying the payment transaction.

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s-f-1-30_payment-method-code	String with length of 1-30 characters.	No	visa	Payment Method	3	String key identifying the payment method used.
s-t-1-6_authorization-number	String with length of 1 to 6 characters.	Yes	123456	Authorization id.	5	A reference provided by the authorizing institution. Only required in response messages and will only be present where the transaction is approved.
l-f-1-20_dynamic-reference-number	Integer value formatted as string with 1-20 numeric characters.	Yes	23452345	Dynamic reference number	5	Dynamic reference number.
s-t-1-30_card-type	String with length of 1 to 30.	Yes	visa	Card type	5	Card type.
s-t-1-6_card-expiry-date	String with length of 1 to 6.	Yes	042015	Expiry date	5	Expiry date of the card in format MMDDYY.
s-t-1-4-error-code	String with length of 1 to 4.	Yes	H002	Error code	5	Error code, generated by Sales Connector (Hxxx) or received from acquirer (Bxxx).
i-t-2-2_card-3ds-auth-status	String with length of 2.	Yes	03	3DS authorization status	5	Status of 3DS authorization. (Note: The value returned is String.)
i-t-1-1_card-3ds-enrollment-status	String with length of 1.	Yes	1	3DS enrollment status	5	Electronic Commerce Indicator (ECI) value is returned by Directory Server to indicate the authentication results of your customer's credit card payment on 3D Secure.
s-t-1-1_3ds-charge-back	String with length of 1.	Yes	N	3DS charge back	5	3DS charge-back (J= 3DS, N=CVV after attempt to 3DS, P=only CVV).
i-t-1-3_customer-ip-country	String with length of 1 to 3.	Yes	233	Estonia	5	Country code of the customer (resolved from customer ip address).
i-t-1-3_card-issued-country	String with length of 1 to 3.	Yes	40	Austria	5	Code of country which issued the card.
i-t-2-2_card-pan-last2	String of digits with length of 2.	Yes	11	Last two digits on the card	5	Last 2 digits of the card used to make the payment.
i-t-6-6_card-pan-first6	String of digits with length of 6.	Yes	453288	First six digits on the card	5	First 6 digits of the cars used to make the payment.
s-t-1-256_token-two-way	String with length of 1 to 256.	Yes	100	Token	5	Token that was registered for the card that was used.
s-t-1-8_card-product	String with length of 1 to 8.	Yes	debit	Card product	5	Card product type (applied only to specific issuer).

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## 3.10 Refund Amount (refund-amount)

This operation is for refunding amounts to a card without matching it to a payment. It can be used for example for crediting loyalty cashbacks. The use of this operation requires a separate agreement with Nordea Connect.

### 3.10.1 Additional Request Fields

Name	Format	Opt	Example Value	Title	Version	Description
l-f-1-20_saved-payment-method-id	64 bit signed integer value formatted as a string with 1-20 numeric characters.	Yes	123	Saved Payment Method ID	5	ID of the saved payment method.
s-t-256-512_encrypted-card-details	String with length of 256-512 characters.	Yes	FA12...FF	Encrypted Card Details	6	<PAN>=<MMyyyy> padded with PKCS #1 padding and RSA encrypted and converted to upper case hexadecimal string.
s-t-1-256_token	String with length of 0 or 1-256 characters.	Yes	100	Token	6	Token that was registered for the card that was used.
s-f-1-30_payment-method-code	String with length of 1-30 characters.	No	visa	Payment Method	5	The payment method code.
i-f-1-3_refund-currency-code	String with length of 1-3 numeric characters.	No	978	Currency Code	5	Numeric ISO 4217 currency code.
l-f-1-20_refund-amount	64 bit signed integer value formatted as a string with 1-20 numeric characters.	No	100	Refund Amount	5	Amount to refund. Example value corresponds to 1 Currency Unit (e.g. 1 EUR).
s-t-1-36_order-note	String with length of 0 or 1-36 characters.	Yes	Example note.	Order Note	5	Custom parameter reserved for shop system to use.
s-t-1-1024_dynamic-feedback	String with length of 1-1024 chars.	Yes	s-t-1-6_authorization-number, l-f-1-20_dynamic-reference-number, s-t-1-30_card-type, s-t-1-6_card-expiry-date, s-t-1-4_error-code, i-t-1-2_card-3ds-auth-status, i-t-1-1_card-3ds-enrollment-status, s-t-1-1_3ds-charge-back, i-t-1-3_customer-ip-country, i-t-1-3_card-issued-country, i-t-2-2_card-pan-last2, i-t-6-6_card-pan-first6, s-t-1-256_token-two-way, s-t-1-8_card-product (applies only to specific issuer)	Dynamic feedback	5	List of parameters to be added to response (if available).

### 3.10.2 Additional Response Fields

Name	Format	Opt	Example Value	Title	Version	Description
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l-f-1-20_transaction-number	Integer value formatted as string with 1-20 numeric characters.	No	123	Transaction Number	3	Transaction number identifying the payment transaction. Assigned by payment system.
s-f-1-30_payment-method-code	String with length of 1-30 characters.	No	visa	Payment Method	3	String key identifying the payment method used.
s-t-1-6_authorization-number	String with length of 1 to 6 characters.	Yes	123456	Authorization id.	5	A reference provided by the authorizing institution. Only required in response messages and will only be present where the transaction is approved.
l-f-1-20_dynamic-reference-number	Integer value formatted as string with 1-20 numeric characters.	Yes	23452345	Dynamic reference number	5	Dynamic reference number.
s-t-1-30_card-type	String with length of 1 to 30.	Yes	visa	Card type	5	Card type.
s-t-1-6_card-expiry-date	String with length of 1 to 6.	Yes	042015	Expiry date	5	Expiry date of the card in format MMDDYY.
s-t-1-4-error-code	String with length of 1 to 4.	Yes	H002	Error code	5	Error code, generated by Sales Connector (Hxxx) or received from acquirer (Bxxx).
i-t-2-2_card-3ds-auth-status	String with length of 2.	Yes	03	3DS authorization status	5	Status of 3DS authorization. (Note: The value returned is String.)
i-t-1-1_card-3ds-enrollment-status	String with length of 1.	Yes	1	3DS enrollment status	5	Electronic Commerce Indicator (ECI) value is returned by Directory Server to indicate the authentication results of your customer's credit card payment on 3D Secure.
s-t-1-1_3ds-charge-back	String with length of 1.	Yes	N	3DS charge back	5	3DS charge-back (J= 3DS, N=CVV after attempt to 3DS, P=only CVV).
i-t-1-3_customer-ip-country	String with length of 1 to 3.	Yes	233	Estonia	5	Country code of the customer (resolved from customer ip address).
i-t-1-3_card-issued-country	String with length of 1 to 3.	Yes	40	Austria	5	Code of country which issued the card.
i-t-2-2_card-pan-last2	String of digits with length of 2.	Yes	11	Last two digits on the card	5	Last 2 digits of the card used to make the payment.
i-t-6-6_card-pan-first6	String of digits with length of 6.	Yes	453288	First six digits on the card	5	First 6 digits of the cars used to make the payment.
s-t-1-256_token-two-way	String with length of 1 to 256.	Yes	100	Token	5	Token that was registered for the card that was used.
s-t-1-8_card-product	String with length of 1 to 8.	Yes	debit	Card product	5	Card product type (applied only to specific issuer).

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## 3.11 Get Payment Status (get-payment-status)

This operation is for getting the payment status of a single transaction. It should not be used for polling status frequently as Nordea Connect always sends a call-back when a payment is completed. This operation can be used when some error has occurred and the Merchant wants to know the status of the payment.

### 3.11.1 Additional Request Fields

Name	Format	Opt	Example Value	Title	Version	Description
s-f-1-30_payment-method-code	String with length of 1-30 characters.	No	visa	Payment Method	3	The payment method code.
l-f-1-20_transaction-number	Integer value formatted as string with 1-20 numeric characters.	No	123	Transaction Number	3	Transaction number identifying the payment transaction. Assigned by payment system.

### 3.11.2 Additional Response Fields

Name	Format	Opt	Example Value	Title	Version	Description
l-f-1-20_transaction-number	Integer value formatted as string with 1-20 numeric characters.	No	123	Transaction Number	3	Transaction number identifying the payment transaction. Assigned by payment system.
s-f-1-30_payment-method-code	String with length of 1-30 characters.	No	visa	Payment Method	3	The payment method code.
s-f-1-36_order-number	String with length of 1-36 characters.	No	123	Order Number	3	Textual order number assigned by shop system. Valid characters are a-z, A-Z, 0-9 and minus sign.
t-f-14-19_order-timestamp	yyyy-MM-dd HH:mm:ss	No	2010-01-01 01:01:32	Order Timestamp	3	UTC timestamp defining the orders time from web shop point of view.
i-f-1-3_order-currency-code	String with length of 1-3 numeric characters.	No	978	Currency Code	3	Numeric ISO 4217 currency code.
l-f-1-20_order-gross-amount	64 bit signed integer value formatted as a string with 1-20 numeric characters.	No	100	Gross Amount	3	Gross amount including tax with two decimal
s-f-1-30_payment-status-code	String with length of 1-30 characters.	No	authorized	Payment Method Code	3	Code identifying status of the chosen payment method.
s-f-1-20_reference-number	String with length of 1-20 characters.	Yes	1230000045678	Reference Number	4	Nordea Connect Reference Number of electronic payment.

## 3.11.3 Payment Status Codes

### 3.11.3.1 Card Payment Status Codes

Status Code	Description
committed	CardPayment commitment has been captured and committed
settled	CardPayment has been settled by acquiring Bank
verified	CardPayment has been verified
refunded	CardPayment has been refunded
authorized	CardPayment has been authorized
cancelled	CardPayment has been cancelled
subscribed	CardPayment is used for creating a subscription

### 3.11.3.2 Invoice Payment Status Codes

Status Code	Description
committed	InvoicePayment commitment has been received
settled	InvoicePayment has been settled by acquiring Bank
verified	InvoicePayment has been verified
refunded	InvoicePayment has been refunded
initiated	InvoicePayment commitment has not been received
cancelled	InvoicePayment has been cancelled

### 3.11.3.3 Electronic Payment Status Codes

Status Code	Description
committed	ElectronicPayment commitment has been received
settled	ElectronicPayment has been settled by acquiring Bank
verified	ElectronicPayment has been verified
refunded	ElectronicPayment has been refunded
initiated	ElectronicPayment commitment has not been received



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## 3.12 List Transaction Numbers (list-transaction-numbers)

This operation is for listing transaction numbers (transaction id) generated by Nordea Connect that are associated to an order number (order id) that you have specified.

### 3.12.1 Additional Request Fields

Name	Format	Opt	Example Value	Title	Version	Description
s-f-1-36_order-number	String with length of 1-36 characters.	No	123	Order Number	3	Textual order number assigned by shop system. Valid characters are a-z, A-Z, 0-9 and minus sign.

### 3.12.2 Additional Response Fields

Name	Format	Opt	Example Value	Title	Version	Description
l-f-1-20_transaction-number-<N>	Integer value formatted as string with 1-20 numeric characters.	No	123	Transaction Number	3	Transaction number identifying the payment transaction. Assigned by payment system.
s-f-1-30_payment-method-code-<N>	String with length of 1-30 characters.	No	visa	Payment Method	3	The payment method code.

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## 3.13 Save Card Payment Method (save-card-payment-method)

This operation is used to save a card. The use of this operation requires a separate agreement with Nordea Connect and requires you to be PCI-DSS certified.

### 3.13.1 Additional Request Fields

Name	Format	Opt	Example Value	Title	Version	Description
s-f-1-30_buyer-first-name	String with length of 1-30 characters.	No	John	First Name	3	First name of the buyer.
s-f-1-30_buyer-last-name	String with length of 1-30 characters.	No	Smith	Last Name	3	Last name of the buyer.
s-t-1-30_buyer-phone-number	String with length of 0,1-30 characters.	Yes	+358 40 234234234	Phone Number	3	Phone number of the buyer.
s-f-1-100_buyer-email-address	String with length of 1-30 characters.	No	<a href="mailto:john.smith@gmail.com">john.smith@gmail.com</a>	Email Address	3	Email address of the buyer.
s-t-1-255_buyer-external-id	String with length of 1-255 characters.	Yes	213123123	Buyer External Identifier/Custom er id	3	Identifier of the buyer assigned by web shop. If this is given, the other fields are not used in determining the buyer. Information is also stored as part of a token, if token is created and returned for token use cases so that the token's owner can be mapped in calling systems (e.g. with get-token).
s-t-1-30_delivery-address-line-one	String with length of 0,1-30 characters.	Yes	Street 31	Delivery Address Line #1	3	Line one of the delivery address.
s-t-1-30_delivery-address-line-two	String with length of 0,1-30 characters.	Yes	Apartment 2	Delivery Address Line #2	3	Line two of the delivery address.
s-t-1-30_delivery-address-line-three	String with length of 0,1-30 characters.	Yes	Room 3	Delivery Address Line #3	3	Line three of the delivery address.
s-t-1-30_delivery-address-city	String with length of 0,1-30 characters.	Yes	Helsinki	Delivery Address City	3	City of the delivery address.
s-t-1-30_delivery-address-postal-code	String with length of 0,1-30 characters.	Yes	00270	Delivery Address Postal Code	3	Postal code of the delivery address.
i-t-1-3_delivery-address-country-code	String with length of 0,1-3 characters.	Yes	246	Delivery Address Country Code	3	Numeric ISO 3166 country code of the delivery address.
s-f-1-30_payment-method-code	String with length of 1-30 characters.	No	visa	Payment Method	3	The payment method code.
s-f-256-512_encrypted-card-details	String with length of 256-512 characters.	No	FA12...FF	Encrypted card details	3	<PAN>=<MMyyyy> padded with PKCS #1 padding and RSA encrypted and converted to upper case hexadecimal string.
i-t-1-1_register-token	Integer with value 0 or 1.	Yes	1	Register Token	3	Integer defining if a token should be registered for the card that is used.
i-t-1-1_token-scope	Integer with value 1,2,3	Yes	1	Token scope	5	Integer defining which scope token should belong to 1 = Terminal Group, 2 = Company, 3 = Company Group
i-t-1-1_token-extra-info	Integer with value 0 or 1	Yes	1	Request extra token info	5	Integer defining if extra info (masked pan/ expiration date) should be returned.
s-t-1-36_service-code	String with length of 1-36 characters.	Yes	service_code	Service Code	5	Value Added Service Code. Service code is also used for token distribution to acquirer
s-t-1-256_token	String with length of 1-256 characters.	Yes	1234567890	Token	5	The token that was generated by Nordea Connect. Although the type is String, valid values are the ones that can be parsed as Long.

### 3.13.2 Additional Response Fields

Name	Format	Opt	Example Value	Title	Version	Description
s-f-1-30_payment-method-code	String with length of 1-30 characters.	No	visa	Payment Method	3	The payment method code.

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l-t-1-20_payment-method-id	64 bit signed integer value formatted as a string with 1-20 numeric characters.	No	242	Payment Method ID	3	ID of the saved payment method.
s-t-1-30_payment-method-title	String with length of 1-30 characters.	No	455566*****8887	Payment Method Title	3	The title of payment method.
s-t-1-256_token	String with length of 0 or 1-256 characters.	Yes	100	Token	3	Token that was registered for the card that was used.
s-t-10-10_token-expiration-date	yyyy-MM-dd	Yes	2010-01-01	Token expiration date	5	Token expiration date
s-t-1-36_token-masked-pan	String with length of 0 or 1-36 characters.	Yes	123456*****0000	Masked pan	5	Masked pan used to generate token

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## 3.14 Swish payment (create-payment-request)

Operation to initiate a swish payment. If the request is accepted, the service call returns s-t-1-10\_payment-request-result with value Created. Depending on the action of the consumer, a callback will be made to the URL provided in s-f-5-256\_callback-url. For details of the callback see the next section.

### 3.14.1 Additional Request Fields

Name	Format	Opt	Example Value	Title	Version	Description
i-f-1-3_order-currency-code	String with length of 1-3 numeric characters.	No	752	Currency Code	5	Numeric ISO 4217 currency code.
i-t-1-3_delivery-address-country-code	String with length of 0,1-3 characters.	Yes	246	Delivery Address Country Code	5	Numeric ISO 3166 country code of the delivery address.
l-f-1-20_order-gross-amount	64 bit signed integer value formatted as a string with 1-20 numeric characters.	No	1230	Gross Amount	5	Gross amount including tax with two decimal precision.
s-f-5-256_callback-url	String with length of 5 to 256.	No	https://	Call Back URL	5	Call back url of the Webshop, to get notification of the outcome of the payment request. It only supports https.
locale-f-2-5_payment-locale	String with length of 2-5 characters.	No	fi_FI	Locale	5	The language locale used by buyer.
s-f-1-100_buyer-email-address	String with length of 1-100 characters.	No	john.smith@gmail.com	Email Address	5	Email address of the buyer.
s-f-1-30_buyer-first-name	String with length of 1-30 characters.	No	John	First Name	5	First name of the buyer.
s-f-1-30_buyer-last-name	String with length of 1-30 characters.	No	Smith	Last Name	5	Last name of the buyer.
s-f-1-30_payment-method-code	String with length of 1-30 characters.	No	swish	Payment Method	5	String key identifying the payment method used.
s-f-1-36_order-number	String with length of 1-36 characters.	No	123	Order Number	5	Textual order number assigned by shop system. Valid characters are a-z, A-Z, 0-9 and minus sign.
s-t-1-255_buyer-external-id	String with length of 1-255 characters.	Yes	6633	Buyer External Identifier	5	Identifier of the buyer assigned by web shop. Not recommended to be used. Using this will be replace identification mechanism normally based on other mandatory user details.
s-t-1-30_buyer-phone-number	String with length of 0,1-30 characters.	Yes	358401639099	Phone Number	5	Phone number of the buyer.
s-t-1-30_delivery-address-city	String with length of 0,1-30 characters.	Yes	Helsinki	Delivery Address City	5	City of the delivery address.
s-t-1-30_delivery-address-line-one	String with length of 0,1-30 characters.	Yes	Street 31	Delivery Address Line #1	5	Line one of the delivery address.
s-t-1-30_delivery-address-line-two	String with length of 0,1-30 characters.	Yes	Apartment 2	Delivery Address Line #2	5	Line two of the delivery address.

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s-t-1-30_delivery-address-line-three	String with length of 0,1-30 characters.	Yes	Room 3	Delivery Address Line #3	5	Line three of the delivery address.
s-t-1-36_order-note	String with length of 0 or 1-36 characters.	Yes	Example note.	Order Note	5	Custom parameter reserved for shop system to use.
t-f-14-19_order-timestamp	yyyy-MM-dd HH:mm:ss	No	2010-01-01 01:01:32	Order Timestamp	5	UTC timestamp defining the orders time from web shop point of view.
t-f-14-19_payment-timestamp	yyyy-MM-dd HH:mm:ss	No	2010-01-01 01:01:32	Payment Timestamp	5	UTC timestamp defining the payment start time from web shop point of view. If payment is retried then payment timestamp has to differ from first payment for same order.

0-50 basket items supported and they are only viewed to user as reminder of what the order contains.

s-t-1-30_bi-name-<N>	String with length of 1-30 characters.	Yes	Red Apple	Item Name	3	Item name of the Nth basket item.
i-t-1-20_bi-unit-cost-<N>	64 bit signed integer value formatted as a string with 1-20 numeric characters. Must not be present if unit gross cost is used.  Must be filled if unit gross cost is not filled. Must not be filled if it is.	Yes	1000	Item Unit Cost	3	Unit cost with two decimal precision but without discount and tax. Example value corresponds to 10 EUR.  NOTE: usage of unit cost instead of unit gross cost can create rounding errors, when refunding individual items.  If you for example have gross cost of 89.00 EUR, there is no corresponding unit cost with discount 0% and GST 24%. 77.17 EUR and 24% GST is 88.99 EUR, but 77.18 EUR lead to gross cost of 89.01 EUR.  Thus if consumer buys 2 items with gross cost of 89.00 and returns only one he will be returned 88.99 EUR. (If he returns both then the entire row will be refunded he will get full refund.)  The solution to this problem is either to use unit gross cost, or calculate unit cost first and calculate gross cost by adding GST, and not by calculating GST from unit gross cost, because if one does it this way, there will be rounding errors unless prices are selected not to have them, since EURO and other currencies are finitely dividable.
i-t-1-20_bi-unit-gross-cost-<N>	64 bit signed integer value formatted as a string with 1-20 numeric characters.  Must be filled if unit cost is not filled. Must not be filled if it is.	Yes	124	Item Unit Gross Cost	3	Unit cost including discount and tax with two decimal precision. Example value corresponds 1 EUR , 24% vat and 0% discount.
i-t-1-4_bi-vat-percentage	Integer formatted as string with 0,1-4 numeric characters	Yes	2300	Item VAT Percentage	3	Item value added tax percentage with two decimal precision. Example value corresponds to 22,5%. Currently, cannot be an empty string nor missing.
i-t-1-11_bi-unit-count-<N>	Integer value formatted as string with 1-11 numeric characters.	Yes	1	Item Unit Count	3	Number of units in the item.

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i-t-1-20_bi-gross-amount-<N>	64 bit signed integer value formatted as a string with 1-20 numeric characters.	Yes	1230	Item Gross Amount	3	Item gross amount including tax and discount with two decimal precision. Example value corresponds to 10 EUR with 23% VAT, 0% discount.
i-t-1-20_bi-net-amount-<N>	64 bit signed integer value formatted as a string with 1-20 numeric characters.	Yes	1000	Item Net Amount	3	Item net amount calculated from unit cost times unit count with two decimal precision. Example value corresponds to 10 EUR.
i-t-1-4_bi-discount-percentage-<N>	Integer formatted as string with 0,1-4 numeric characters	Yes	550	Item Discount Percentage	3	Item discount percentage tax with two decimal precision. Example value corresponds to 5,5%. Currently, cannot be an empty string nor missing.

## 3.14.2 Additional Response Fields

Name	Format	Opt	Example value	Title	Version	Description
i-f-1-20_transaction-number	Integer value formatted as string with 1-20 numeric characters.	No	821613	Transaction Number	3	Unique number from identifying the payment transaction.
s-t-1-10_payment-request-result	String with length of 1-10 characters.	No	Created	Payment Result Code	3	Code identifying status/result of the payment transaction.

## 3.14.3 create-payment-request API Response Result Codes

Status Code	Description
Created	The payment is successfully initiated
Failed	The payment is failed

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## 3.15 Swish payment (Callback response field)

Note! Callback will only be sent if create-payment-request returns s-t-1-10\_payment-request-result with value Created.

### 3.15.1 Callback Response Fields

Name	Format	Opt	Example value	Title	Version	Description
i-f-1-11_interface-version	String with length of 1-10 characters.	No	1	Interface Version	3	Version of the payment interface.
l-f-1-20_transaction-number	Integer value formatted as string with 1-20 numeric characters.	No	821613	Transaction Number	3	Unique number from identifying the payment transaction.
s-t-1-10_payment-request-result	String with length of 1-10 characters.	No	PAID	Payment Result Code	3	Code defines the status/result of the transaction during callback.
s-f-1-10_software-version	String with length of 1-10 characters.	NO	1.0.1	Version	5	Version of the payment system.
s-f-1-30_payment-method-code	String with length of 1-30 characters.	No	swish	Payment Method	5	String key identifying the payment method used.
s-f-1-36_order-number	String with length of 1-36 characters.	No	123	Order Number	3	Textual order number assigned by shop system. Valid characters are a-z, A-Z, 0-9 and minus sign.
s-t-1-36_order-note	String with length of 0 or 1-36 characters.	Yes	Example note.	Order Note	3	Custom parameter reserved for shop system to use.
t-f-14-19_order-timestamp	yyyy-MM-dd HH:mm:ss	No	2018-06-11 01:01:32	Order Timestamp	3	UTC timestamp defining the orders time from web shop point of view.
i-f-1-3_order-currency-code	String with length of 1-3 numeric characters.	No	752	Currency Code	3	Numeric ISO 4217 currency code.
l-f-1-20_order-gross-amount	64 bit signed integer value formatted as a string with 1-20 numeric characters.	No	100	Gross Amount	3	Gross amount including tax with two decimal
s-t-256-256_signature-two	String with length of 512 characters.	Yes	fa12...ff	Signature Two	3	256 byte signature converted to lower case hexadecimal string. String length will be 512 characters but the parameter name includes 256 due to backwards compatibility issues.
s-t-256-256_signature-one	String with length of 512 characters.	Yes	fa12...ff	Signature One	3	256 byte signature converted to lower case hexadecimal string. String length will be 512 characters but the parameter name includes 256 due to backwards compatibility issues.

## 3.15.2 Callback Response Result Codes

Status Code	Description
PAID	The payment was successful
DECLINED	The payer declined to make the payment
ERROR	Payment failed at PSP/verifone for Some error occurred, like payment request timed out from 3rd party (Swish Handler, Siirto ..)
FAILED	Payment failed at the payment service



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## 4 Customer Support

Customer can contact Nordea Connect for support through following channels:

### 4.1 Sweden

Email: [support@nordeconnect.com](mailto:support@nordeconnect.com)

Phone: +46 (0)772 280 888

Service Hours:

Monday – Friday: 07:00 – 20:00

Saturday: 08:00 – 17:00

Sunday: 11:00 – 17:00

### 4.2 Finland

Email: [support@nordeconnect.com](mailto:support@nordeconnect.com)

Phone: +358 (0)100 5010

Service Hours:

Monday – Friday: 08:00 – 21:00

Saturday: 09:00 – 18:00

Sunday: 12:00 – 18:00

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## 5 Appendix

### 5.1 Payment Method Codes

Payment method code (s-t-1-30_payment-method-code / s-f-1-30_payment-method-code )	Payment method type (s-t-1-30_payment-method-type)	Type of payment	Notes
visa	VISA	CARD	
master-card	MASTER_CARD	CARD	
s-pankki-verkkomaksu	S_PANKKI_VERKKOMAKSU	BANK	S-Pankki interface doesn't support refunds.
aktia-maksu	AKTIA_MAKSU	BANK	
op-pohjola-verkkomaksu	OP_POHJOLA_VERKKOMAKSU	BANK	
nordea-e-payment	NORDEA_E_PAYMENT	BANK	
sampo-web-payment	SAMPO_WEB_PAYMENT	BANK	Danske Bank Finland.
handelsbanken-e-payment	HANDELSBANKEN_E_PAYMENT	BANK	
alandsbanken-e-payment	ALANDSBANKEN_E_PAYMENT	BANK	Ålandsbanken interface doesn't support refunds.
amex	AMEX	CARD	
diners	DINERS	CARD	
pop-pankin-verkkomaksu	POP_PANKIN_VERKKOMAKSU	BANK	
saastopankin-verkkomaksu	SAASTOPANKIN_VERKKOMAKSU	BANK	
visa-electron	VISA_ELECTRON	CARD	Bin table must be installed, in order to use this payment method.
master-card-maestro	MASTER_CARD_MAESTRO	CARD	bin table must be installed, in order to use this payment method.
swish	SWISH	ELECTRONIC	
siirto	SIIRTO	ELECTRONIC	
Afterpay-invoice	AFTERPAY_INVOICE	INVOICE PAYMENT	

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## 5.2 3DS Payment

The 3ds payment starts with the Process Payment Operation. If the process payment operations include the parameter ***i-t-1-1\_3ds-secure-mode*** a 3ds payment can be initiated if the card is 3ds enrolled. Look for md/url/pareq.

The ***i-t-1-1\_3ds-secure-mode*** parameter can be assigned either value '1' or '2' and will have different consequences depending on the value. The Process Payment Operation will check if the card is 3ds enrolled

- If the card is 3ds enrolled, a 3ds payment can be initiated.
- If the card is not 3ds enrolled and,
  - ***i-t-1-1\_3ds-secure-mode*** is 1, the payment will be rejected.
  - ***i-t-1-1\_3ds-secure-mode*** is 2, the payment will be accepted.

### Initiating 3ds Payment

When the Process Payment Operation has been called with the ***i-t-1-1\_3ds-secure-mode*** parameter and the result is that the card is 3ds enrolled, the response will also contain the following three parameters,

- ***s-t-1-256\_3ds-acs-url***
- ***s-t-1-8192\_3ds-md***
- ***s-t-1-8192\_3ds-pareq***

The Merchant must HTTP POST to the URL received in ***s-t-1-256\_3ds-acs-url***. The POST must include both ***s-t-1-8192\_3ds-md*** and ***s-t-1-8192\_3ds-pareq*** as hidden parameters with the name ***MD*** and ***PaReq***. The call must also include a parameter named ***TermUrl*** which has the URL where the Merchant intends to receive the response. This call will render a 3ds page where the Consumer has to complete a 3ds process, upon completion of the process the Merchant will receive a response to the ***TermUrl*** provided. The response will include the two parameters required for the Complete Payment Operation.

## 5.3 Complete Payment (complete-payment)

The Complete Payment Operation is a call which completes a 3DS payment.

### 5.3.1 Additional Request Fields

Name	Format	Opt	Example Value	Title	Version	Description
s-t-1-8192_3ds-md	String with length of 1 to 8192.	No	MD_0_____ 12302...c3	MD token for 3DS authentication	3	One time token for 3D secure authentication.
s-t-1-65536_3ds-pares	String with length of 1 to 65536.	No	eJzVWNmuo0qy /Z...M=	PaRes token for 3DS authentication	3	One time token for 3D secure authentication.

Besides conventional request parameters, the request is required to contain a session header from the process payment operation that initiated the payment process.

### 5.3.2 Additional Response Fields

Operation complete payment has the same response parameters as **Process Payment (process-payment)**.

## 5.4 Error Codes

Possible error codes which server to server interface can return during its operations. New error codes may be added without prior notice.

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Error Code	Description
system_error	System error occurred while processing request.
signature_verification_failed	Indicates that signature verification was not succesful.
merchant_agreement_not_found	Indicates that such merchant agreement does not exist.
access_denied	Indicates that access level is not sufficient.
no_acquirer_agreements	Indicates that no acquirer agreements could be found.
buyer_payments_disabled	Indicates that payments are disabled.
service_unavailable	Service is currently unavailable
invalid_expiration_date	Indicate that payment expiration date is invalid.
unknown_saved_payment_method	Indicates that provided saved payment method was not found.
not_allow_payment_by_merchant	Indicates that merchant agreement does not allow buyer payments.
not_allow_payment_by_acquirer	Indicates that acquirer agreement does not allow buyer payments.

## Possible error codes returned by payment validator.

Error Code	Description
order-number-not-valid	Order number not valid
invalid-currency	Invalid currency
invalid-currency-code	Invalid currency code
invalid-payment-timestamp	Invalid payment timestamp
delivery-address-country-code	Delivery address country code
deferred-payment-not-0-or-1	Deferred payment not 0 or 1
partial-capture-not-supported	Partial capture not supported
invalid-card-security-code	Invalid card security code
recurring-payment-parameter	Recurring payment parameter
recurring-payment-name	Recurring payment name
recurring-payment-mandatory	Recurring payment mandatory
recur-subscrip-expected-per-mand	Recurring subscription expected per mandate
invalid-save-payment-method	Invalid save payment method
invalid-save-payment-method	Invalid save payment method
invalid-register-token	Invalid register token
skip-confirmation-page	Skip confirmation page
invalid-payment-method-code	Invalid payment method code
lost-saved-payment-method-id	Lost saved payment method id
invalid-payment-method-code	Invalid payment method code
error-no-basket-items	Error no basket items
negative-transaction-number	Negative transaction number
payment-method-missing	Payment method missing
invalid-input-channel	Invalid input channel
channel-mode-inv-missing-param	Channel mode invalid missing parameters
channel-mode-inv-product-nr	Channel mode invalid product number input
subscription-expected-period	Subscription expected period
invalid-subscription-end	Invalid subscription end
error-unknown-parameter-type	Validation error unknown parameter type
subscription-expected-period	Subscription expected period
invalid-subscription-end	Invalid subscription end

## 5.5 Operation related error codes

Error Code	Description
unknown-error	Unknown error
system-error	System error
signature-verification-failed	Signature verification failed
merchant-agreement-not-found	Merchant agreement not found
access-denied	Access denied
no-acquirer-agreements	No acquirer agreements
buyer-payments-disabled	Buyer payments disabled
Failed	Failed
service-unavailable	Service unavailable
invalid-expiration-date	Invalid expiration date
unknown-saved-payment-method	Unknown saved payment method
not-allow-payment-by-merchant	Not allow payment by merchant
not-allow-payment-by-acquirer	Not allow payment by acquirer
invalid-card-number	Invalid card number
invalid-currency	Invalid currency
invalid-payment-method	Invalid payment method
invalid-order-number	Invalid order number
order-already-debited	Order already debited
invalid-order-amount	Invalid order amount
invalid-transaction-number	Invalid transaction number
order-already-canceled	Order already canceled
unknown-terminal	Unknown terminal
token-not-found	Token not found
invalid-service	Invalid service

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not-supported-by-interface-ver	Not supported by interface version
unsupported-auth-cancel	Unsupported authorization cancel
token-expired	Token expired
token-deleted	Token deleted
failed-to-contact-services	Failed to contact services
invalid-payment	Invalid payment
invalid-phone-number-missing	Invalid phone number missing
invalid-values-anonymous-buyer	Invalid values anonymous buyer
incorrect-payment-method	Incorrect payment method
payment-rejected	Payment rejected
incorrect-token	Incorrect token
incorrect-payment-link-number	Incorrect payment link number
incorrect-link-delivery-mode	Incorrect link delivery mode
sms-phone-number-missing	Sms phone number missing
payment-link-inv-mer-agreement	Invalid payment link merchant agreement
payment-link-not-found-for-upd	Payment link not found for update
token-terminal-serial-missing	Terminal serial not found for token update - contact Nordea Connect to add token terminal serial to your ecom configuration.
buyer-email-invalid	Buyer email id not in format. eg. abc@abc.com
sender-email-invalid	Sender email id not in format. eg. abc@abc.com
partial-approval-not-allowed	Partial approval not allowed. Please contact Nordea Connect.
part-approval-req-deferred-pmt	Partial approval requires deferred payment
supplementary-auth-not-supported	Supplementary auth is not supported if Afd Advice and AfdSupplementaryAuth is not enabled for the acquirer
already-suppl-authorized	Supplementary already processed for the original transaction number.
invalid-merchant-agreement-code	Process Supplementary merchant agreement code is not matching with original transaction merchant agreement code
error-orig-txn-wrong-status	process-supplementary is called when original transaction is not in debited/committed state.