

Nordea

E-payment

Service Description

September 2019, versio 0004



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1 E-payment

1.1 General description

Nordea's e-payment is an electronic payment method in which a buyer makes purchases and pays for the purchases within a single Internet session. The buyer's payment can be transferred to the seller immediately or on a later date.

The seller is notified of the buyer's payment by the e-payment reference number. The seller also has query and refund functions at its disposal. With the query function the seller can validate that an e-payment was successful. With the refund function the seller using e-payment can refund a purchase paid by e-payment, or a part of it.

1.2 Benefits of the service

The seller does not need to post a separate invoice to the buyer or deliver goods C.O.D. This reduces invoicing and delivery costs.

E-payments are entered in the seller's account like any other payments. E-payments can be processed in the ledger electronically and carried forward to bookkeeping and an automatic logistics system.

The seller receives the buyer's payment immediately to its account, and can also authenticate it immediately. The seller can also use an e-payment with a due date and thus allow a payment period for the buyer, for example, for the period required to deliver the goods.

The seller does not have to acquire new software for e-payment, because it is based on the same Internet technology as the seller's service.

With e-payment, the seller can securely sell its products on the Internet.

A Finnish seller can also adopt e-payment in the other Nordic countries. The adoption of the service requires that the seller has an account for payments and an e-payment agreement in the relevant country. E-payment is realised differently in different countries. Visit the Nordea website for the relevant country for contact information.

1.3 Availability

E-payment is available 24 hours a day.

1.4 Security

In the communications between the buyer and Nordea, TLS/SSL encryption technology is used. It encrypts all data communications with keys that are programmed to change constantly. This prevents third parties from viewing or altering the transmitted data. The encryption technology also ensures that the buyer is dealing with Nordea's e-payment server and verifies that the payment data does not change at any time during the data connection.

When using e-payment, the payer's account cannot be accessed by any third party, because Nordea reliably identifies the payer by his customer ID and session-specific codes. The payer also confirms each e-payment with a specific confirmation code.

The MAC (message authentication code) guarantees the integrity and stability of data communications as well as the identification of the parties.

2 Service agreement, instructions and adoption

2.1 Service requirements

The seller's invoicing system must be able to form an invoice for the buyer by using Internet technology. In addition to invoicing data, the invoice includes the e-payment data. Once the buyer has accepted the invoice, the data has to be transmitted to the seller's invoicing and order-processing systems. However, e-payment does not require any specific Internet server software.

In order to monitor buyers' payments, the seller needs one of the following electronic banking services provided by Nordea: transaction statement, account statement or reference payments. For instance, via the bank connection program and Corporate Netbank, files can be retrieved from the bank's file transfer service. The downloaded files can be processed further using ledger software.

2.2 Service agreement

The seller concludes a written service agreement with Nordea. The seller information is registered at the bank, and the seller also receives a seller ID from the bank. The bank requires the seller to use a Message Authentication Code (MAC) and gives the seller a secret ID (MAC key).

The seller company notifies the branch of any changes in its service or information. If necessary the branch will supplement the agreement with the amended information.

2.3 Testing

Before concluding the agreement, e-payment can be tested in the production environment by using the test seller test codes.

Test seller test codes:

With the authentication code: The seller's code (RCV_ID) is 12345678 and the MAC key is LEHTI

Test account is either FI7429501800000014 or FI3329501800008512

The test seller may receive e-payments only from the test buyer. The access codes of the test buyer have been pre-entered in the test payment. With the test, the seller can check the compatibility of its system with the bank's system and the functionality of the e-payment.

It is also possible to test the technical functionality of the refund and query functions at the bank. However, you will receive an answer, such as THE SERVICE AGREEMENT IS NOT VALID (V2322A1N). See sections 6.5 and 7.6.

2.4 Instructions for the use of e-payment

2.4.1 Name of payment method

Nordea's online payment is called e-payment. Other names may not be used.

2.4.2 Use of the Nordea button

The seller must show its use of e-payment by displaying the Nordea button or the text “Nordea e-payment” on its web pages so that it is clearly visible. The Nordea button is also used as the payment link.

By signing the service agreement, the seller undertakes to use the Nordea button in the manner specified by terms and conditions of Nordea e-payment. The buyer may not reproduce the Nordea button by itself or alter it.

The seller must copy the Nordea button over to its server from Nordea’s server at the address

www.nordea.fi/nordeabutton

2.4.3 Implementation of e-payment in the seller’s service

The agreement requires the seller to use the Nordea button in payments. The Nordea button is a means for the customer to recognise the payment function.

It is recommended that e-payment is implemented in the merchant’s Internet service as simply and straightforwardly as possible. For instance, frames/framesets or windowing technology should not be used.

E-payments may not be sent to buyers via e-mail or by other similar means.

3 Adoption of e-payment

E-payment can be adopted by concluding an agreement on e-services with the bank at the seller’s account branch. In the agreement, the service is defined and the adoption date is fixed.

The information that the seller needs in the adoption phase is available on the agreement form for e-services.

When the agreement is updated by the bank, a MAC key envelope is automatically posted to the address provided by the seller. (NB! If the MAC key should be posted to an address different from the seller’s address, this should be stated when concluding the agreement). The delivery takes 3–4 weekdays by Posti’s valid postal terms.

The seller updates the information provided in the MAC key envelope in its own system at the adoption phase of the service.

If the company is not yet Nordea’s customer, the contact information of the branches is available:

- on Nordea’s website at www.nordea.fi About Nordea/Contact information/konttorihakukohtaa ei ole!
- By telephone from Nordea Business Centre, tel 0200 2121 (in Finnish, Mon–Sun 24 hours a day, 0.11 euros per min. + local network charge/mobile call charge) and 0200 26262 (in English, Mon–Fri 9.00–16.30, local network charge/mobile call charge)

4 E-payment interface

4.1 General

The payment data given by the seller is transmitted to the FORM data group. The data group structure is the following in HTML language:

4.2 FORM data group for e-payment

<form	Initial e-payment data:
method="post"	Method=post
action="https://epmt.nordea.fi/cgi-bin/SOLOPM01">	Server: //epmt.nordea.fi/...
<input name="..." type="..." value="...">	Actual e-payment data: Data name, type and value
</form>	End of e-payment

Field	Data	Data name INPUT NAME=	Value VALUE=	Form	MAC
1.	* Payment version	VERSION	"0004"	AN 4	x
2.	* Payment ID	STAMP	Payment specifier	AN 1-20	x
3.	* Seller ID	RCV_ID	Customer ID from the agreement form; entered without the hyphen	AN 8-15	x
4.	Seller's account	RCV_ACCOUNT	Other than the default account	AN 8-35	x ¹
5.	Name of the seller	RCV_NAME	Other than the default name	AN 1-30	x ¹
6.	Payment language	LANGUAGE	1 = Finnish 2 = Swedish 3 = English	N 1	
7.	* Payment amount	AMOUNT	For example: 990.00	AN 4-19	x
8.	Payment reference	REF	Standard reference	AN 2-25	x
9.	* Payment due date	DATE	"EXPRESS" or "dd MM yyyy"	AN 4-10	x
10.	Payment message	MSG	Buyer's message	AN 420	
11.	* Return link	RETURN	Return address following payment	AN 120	
12.	* Cancel link	CANCEL	Return address for if payment is cancelled	AN 120	
13.	* Reject link	REJECT	Return address for rejected payment	PAGE 120	
14.	Payment confirmation	CONFIRM	YES (NO if the payment is checked from an account statement)	A 3	
15.	* Currency code	CUR	EUR	A 3	x
16.	Terminal type	PMTTYPE	N/A	A 1	
17.	** Account number of the ultimate beneficiary	ULT_BEN_ACCOUNT	Account number of the ultimate beneficiary	AN 35	x
18.	** BIC of the ultimate beneficiary's account	ULT_BEN_ACCOUNT-BIC	BIC code of the ultimate beneficiary's account	AN 35	x
19.	** Name of the ultimate beneficiary	ULT_BEN_NAME	Name of the ultimate beneficiary	AN 35	x
20.	** Business code of the ultimate beneficiary	ULT_BEN_BID	Business code of the ultimate beneficiary preceded by the country code ("FI12345678")	AN 15	x
21.	** Industry code of the ultimate beneficiary	ULT_BEN_IND_CODE	NACE ("64190")	AN 10	x

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22.	Activation of Siirto	SIIRTO	"A" = Siirto as the default payment method	AN 1	X
23.	* MAC key version	KEYVERS	Key version, e.g. 0001	N 4	X ¹
24.	* Algorithm	ALG	"01" = MD5	N 2	X ¹
25.	* MAC authentication code of the payment	MAC	MAC authentication code of the payment	AN 32	X ¹

Explanations

A/N = alphanumeric, i.e. data content is either letters or numbers. The length shows the field's maximum length.

O/M = the data is optional or mandatory.

Field 1 Payment version: "0004".

Field 2 The payment specifier is a code given for the payment by the seller. The specifier may, for example, be a reference number or a combination of date, time and a running code.

Field 3 The seller ID is a code given to the seller by Nordea in its customer data register (= "Customer ID" on the agreement form). The ID is used to retrieve the beneficiary's name and account number to the payment from the bank's register. The ID is stated on the agreement form and it is entered without a hyphen.

Field 4 Seller's account: the seller may also transmit an IBAN account related to a payment in a payment message.

Field 6 By entering the language code, the seller can direct the payer to the Finnish (1), Swedish (2) or English (3) start-up page of e-payment. After login the next page will open in the language selected by the payer for his or her services with the bank.

Field 8 comprises the Payment reference. The reference is presented without the grouping and spaces used in the standard reference.

The reference can be formed from the payment specifier, for example 1234567, by calculating a check digit, i.e. The last digit of the reference number, by using multipliers 7-3-1. The specifier's digits are multiplied from right to left, and the products are added up. The sum is then subtracted from the next highest ten, and the remainder is the check digit added to the specifier.

Specifier	1	2	3	4	5	6	7	
Multiplier	7	1	3	7	1	3	7	
Product	7	2	9	28	5	18	49	= 118
Check digit						120	- 118	= 2

The reference number is 12345672.

The mandatory use of a reference number in an e-payment depends on the definitions of the account for payment linked to the agreement.

The seller can, if it wishes, transmit the global Structured Creditor Reference (RF reference) related to a payment in a payment message. The website of Finance Finland (FFI) includes information on the structure and calculation of the RF reference at finanssiala.fi (with the search word "RF reference").

Field 9 shows the payment due date. If the due date is indicated as "EXPRESS" or the Nordea

current date, the credit transfer from the buyer to the seller is effective immediately after the buyer has accepted the payment. If the e-payment has a due date, it is transferred under Due payments and transfers in the buyer's Netbank after it has been accepted and the payment is made on the due date. Please note that if the payment has a due date, the buyer can, for example, change the amount due or the due date or the payment can be rejected for insufficient cover.

Field 10 The payment message must be formulated into a maximum of six lines comprising a maximum of 35 characters, corresponding to the message lines on the account statement. The message data is transmitted only onto the buyer's account statement. If the e-payment has no reference number, the message data is transmitted onto both the buyer's and the seller's account statements.

Field 11 Return link is a checkpoint in the seller's service if the buyer has confirmed the payment. The data must comprise a complete link in HTML which begins with either <http://> or <https://>. The seller may have attached a so-called query string or parameter data to the link.

Examples:

VALUE="http://tuote.kauppa.fi/order/thankyou.htm" or
VALUE="https://tuote.kauppa.fi/cgi-bin/thankyou?orderno=1234"

Field 12 Cancel link is a checkpoint in the seller's service if the buyer has cancelled the e-payment. The data must comprise the complete URL address in HTML format, for example:

VALUE=<http://tuote.kauppa.fi/order/invoice.htm>

Field 13 Return link to canceled payment. Note! the seller receives no detailed information on the payment.

Field 14 When the value is "YES", the seller receives information on the payment processing through all return links (payment OK, cancelled, rejected). Note! If the payment is cancelled or rejected, the seller receives no detailed information on the payment.

Field 15 contains the transaction's currency. The currency code (EUR) must always be stated in this field.

Field 16 Not used in version 0004. Indicates the terminal type when the e-payment is made through a mobile browser (XHTML). In that case, M = mobile terminal. The terminal type must be indicated by a CAPITAL LETTER. This field is optional. If the field is blank, the payment request is processed as an e-payment on the Internet.

The fields 17–21 below are mandatory for service providers:

Field 17 states the ultimate beneficiary's account number.

Field 18 states the BIC code of the ultimate beneficiary's account number.

Field 19 states the ultimate beneficiary's name without any special characters, including the Scandic characters.

Field 20 states the ultimate beneficiary's business code preceded by the 2-character country code (ISO 3166-1 Alpha-2 code).

Field 21 states the NACE industry code of the ultimate beneficiary at the most accurate level. (Nomenclature of Economic Activities (NACE) Rev. 2.2008)

Field 22 "A" is set as the value when the Siirto payment method is chosen as the default payment method.

Field 23 states the MAC key's 4-digit version number. The key version can be found in the MAC key envelope, which is posted to the seller after the agreement has been concluded.
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The version number is mandatory information.

Field 25 The MAC authentication code of the payment (section 4.3 in the Service Description) is calculated using the MD5 algorithm from the protected data of the payment and from the seller's MAC key. The MAC authentication code of the payment is saved in CAPITAL letters.

The data may not include the characters <, >, ' , " .

4.3 MAC authentication code of e-payment

The payment authentication code is calculated as follows:

1. A character string is generated out of the following fields; please note the fields that are mandatory for service providers.

VERSION&
STAMP&
RCV_ID&
AMOUNT&
REF&
DATE&
CUR&
RCV_ACCOUNT&
RCV_NAME&
ULT_BEN_ACCOUNT&
ULT_BEN_ACCOUNT_BIC&
ULT_BEN_NAME&
ULT_BEN_BID&
ULT_BEN_IND_CODE&
SIIRTO&
KEYVERS&
ALG&
Seller's MAC key&

The character string contains no spaces; all the & characters must be included.

Note! The data must be presented in the order stated above.

Example 1:

0004&1998052212254471&12345678&570,00&55&EXPRESS&EUR&0001&
01&LEHTI&

0004 = version (M)
1998052212254471 = payment specifier (M)
12345678 = seller ID (M)
570,00 = amount (M)
55 = reference number
EXPRESS = express payment (M)
EUR = currency code (M)
0001 = MAC key version (M)
01 = algorithm (M)
LEHTI = seller's MAC key

Example 2:
 0004 = versio (M)
 1998052212254471 = payment specifier (M)
 12345678 =seller ID (M)
 100,00 = amount (M)
 1232 = reference number
 EXPRESS = express payment (M)
 EUR = currency code (M)
 FI3120601800002009 = Account number of the ultimate beneficiary (M)
 NDEAFIHH = BIC of the ultimate beneficiary's account (M)
 TEST BENEFICIARY = Name of the ultimate beneficiary (M)
 FI12345671 = Business code of the ultimate beneficiary (M)
 12345 = (M)
 0001 = MAC key version (M)
 01 = algorithm (M)
 LEHTI =sellers MAC-key (M)

M = mandatory

The authorised set of characters of data included in the MAC calculation is the limited 7-bit ISO 8859-1. The authorised set of characters is shown in the table below. Use of other characters may lead to rejection of the payments.

SP	!		#	\$	%	&		()	*	+	,	-	.	/
0	1	2	3	4	5	6	7	8	9	:	;		=		?
@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_
`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
p	q	r	s	t	u	v	w	x	y	z	{		}	~	

2. Using the MD5 algorithm, a hash value is calculated from the above character string and converted into a hexadecimal presentation format, the maximum length of which is 32 characters.

The result of the calculation with the above values is
 A9DC2F2900315C8B4A66EC6FF841EA92

3. The resulting MAC is entered in the payment MAC field.

The seller's MAC key is a key provided by the bank and is as follows:

- 32–64 characters long
- Seller-specific
- The key is delivered by post after the agreement has been concluded.

4.4 E-payment return data

Note! The seller receives confirmation of the final money transfer from the reference data records or from the account statement, or by making a separate transaction query.

If the customer generates an automatic payment confirmation, the value of the field “CONFIRM” must be YES.

The bank’s system inserts the following parameter data in query-string format at the end of the return link:

```
RETURN_VERSION=0004
RETURN_STAMP=payment specifier
RETURN_REF=payment’s reference number
RETURN_PAID=transaction’s archiving ID in the bank’s system
RETURN_MAC=MAC of the return data
```

The return data format and content are the same as the corresponding fields in the original payment.

The return message check must always include two phases:

1) MAC check

2) RETURN_PAID field check;

- If the field is blank, no payment has been made
- If the field has a value, the payment has been made.

RETURN_PAID is return data for EXPRESS payments and it shows the archive ID of a successful transaction. Its maximum length is 20 characters. For payments with a due date and rejected or cancelled payments, the data is not included in the return link.

RETURN_MAC is calculated in the same way as in the original e-payment by generating a character string from the content of the return data:

```
RETURN_VERSION&
RETURN_STAMP&
RETURN_REF&
RETURN_PAID& (not with payments with a due date)
seller’s MAC&
```

Note! The character string contains no spaces; all the & characters must be included. Using the MD5 algorithm, a hash value is calculated from the above character string and converted into a hexadecimal presentation format, the maximum length of which is 32 characters. This is returned to the seller in the return parameter RETURN_MAC.

Example of the use of the return link and MAC:

- Original return link: VALUE=”http://tuote.kauppa.fi/cgi-bin/thankyou?orderno=1234”

- On return to the seller, the return URL is as follows:
http://tuote.kauppa.fi/cgi-bin/thankyou?orderno=1234&RETURN_VERSION=0004&RETURN_STAMP=1998052212254471&RETURN_REF=57834465&RETURN_PAID=960531258874B85991&RETURN_MAC=BEEE9CD68D971EC1ADABB6517C47710D

5 E-payment query

5.1 General

The e-payment query function can be used to check situations where the seller has not received explicit return data of an e-payment transaction, as has been described above.

5.2 Using the e-payment query in the seller's service

The e-payment query is designed as an automatic, program-based function through which a seller can make a query of all its payments or of pending payments. The seller's WWW server can, for example, browse orders to which the server has not received normal payment acknowledgments. When there is an order lacking acknowledgment, the server forms a query transaction, which includes the seller ID and the payment code and which has been protected for identification and against alteration with a MAC. The query is sent to the bank's server as a form in the HTTP format using an encrypted SSL connection, and the bank's server will respond in a similar manner. The bank's response will include specific payment identification data in the desired format if the original buyer has accepted the payment. For express payments, the response will also include the identification data of the actual payment.

The response has been formed in such a manner that the seller's server can handle the response automatically and update the order data.

5.3 E-payment query data and format

The e-payment query is in the form format and it must include the following data:

Form action

<https://epmt.nordea.fi/cgi-bin/SOLOPM10>

Form method

Post

Field	Data	Data name	Value	Form	MAC
1.	* Query version	VERSION	"0004"	AN 4	x
2.	* Time of query	TIMESTMP	In format "VVVVKKPPHHMMSSnnnn" in which nnnn is the ordinal number if needed	N 18	x
3.	* Seller ID	RCV_ID	Seller ID from the agreement form; entered without a hyphen	AN 15	x
4.	Language code	LANGUAGE	1= Finnish 2= Swedish 3= English	N 1	x
5.	Response type	RESPTYPE	"html" => Response returned in the HTML format "xml" => Response returned in the XML	A 4	x

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Field	Data	Data name	Value	Form	MAC
			format		
6.	Additional data in the response	RESPDATA	html: If the response should include a form data group, enter the full action address of the form data group here. If the field is blank, no form data group will be linked to the response. xml: If you want another mime type than "text/html" for a response in the XML format, specify it in this field.	AN 120	x
7.	Displaying of program-format data	RESPDETL	" " No program-format data to the visible HTML "Y" Program-format data is displayed	A 1	x
8.	Code specifying the original e-payment, which is queried (either stamp or ref mandatory)	STAMP	Code of the original payment given by the merchant	AN 20	x
9.	Reference specifying the original e-payment, which is queried (either stamp or ref mandatory)	REF	Standard reference	AN 25	x
10.	Payment amount	AMOUNT	e.g. 0000000009900 (= EUR 99)	AN 13	x
11.	Payment currency	CUR	EUR	A 3	x
12.	* MAC key version	KEYVERS	Key version, e.g. 0001	N 4	x
13.	* Algorithm used	ALG	"01" = MD5	N 2	x
14.	* MAC authentication code of the query	MAC	The MAC authentication code of the query is formed from the data included in the query. If a field is left out (e.g. REF), the field in question and the & character are excluded from the MAC calculation.	AN 32	x

The data may not include characters <, >, ' , ".

An example of MAC calculation:

0004&199911161024590001&12345678&1&html&https://tuote.kauppa.net/ok.htm&Y
&501&0001&01&LEHTI&

Result of the calculation: EBA1C5C02027A824BE6C3C0C4223064C

5.4 E-payment query, response data

The response contains the following data:

Field	Data	Data name	Value	Form	MAC
1.	Query version	VERSION	"0004"	AN 4	x
2.	Time of query	TIMESTAMP	In format "VVVVKKPPHHMSSnnnn", in which nnnn is the ordinal number if needed	N 18	x
3.	Seller ID	RCV_ID	Merchant ID	AN 15	x
4.	Return data	RESPCODE	"OK" if the payment is found and accepted (with EXPRESS payments it must also be checked that the response message includes the bank's archive ID in field PAID). "Notfound" if the payment is not found	A 8	x

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			"Error" if the payment is unclear (contact the bank)		
5.	Code of the original payment	STAMP	Code of the original payment given by the merchant	AN 20	x
6.	Seller's account	RCV_ACCO UNT	Other than the default account	AN 42	x
7.	Payment reference	REF	Standard reference	AN 25	x
8.	Payment date	DATE	In format "yyyyMMdd"	AN 10	x
9.	Payment amount	AMOUNT	e.g. 000000009900 (= EUR 99)	AN 13	x
10.	Payment currency	CUR	EUR	A 3	x
11.	Payment archive ID for express payments	PAID	Bank's archive ID	AN 16	x
12.	Payment status	STATUS	"Prod"= production payment, "Demo"= demo payment	A 4	x
13.	Payer's account number	PAYER_AC COUNT	Payer's account number	AN 35	x
14.	Payer's account name	PAYER_NA ME	Payer's account name	AN 35	x
15.	MAC key version	KEYVERS	As in e-payment, key version, e.g. 0001	N 4	x
16.	Algorithm used	ALG	"01" = MD5	N 2	x
17.	MAC authentication code of the query response	MAC	Query MAC	AN 32	x

Example 1 of MAC calculation:

0004&11608181355070001&12345678&OK&1471517136707&20601800002009&24
8587880709&20160818&0000000000875&EUR&18082588INW10002&Demo&0001
&01&LEHTI&

Result of the calculation: 4A7C842C4D77BFD6628F0EF4603100B6

Example 2 of MAC calculation:

0004&11608181355070001&12345678&OK&1471517136707&20601800002009&24
8587880709&20160818&0000000000875&EUR&18082588INW10002&Prod&FI1122
3344&Nimi&0001&01&LEHTI&

Result of the calculation: B87AC77E04111885242063F7539A64B5

x = information included in the MAC-calculation.

5.5 Response format in different situations

If the query does not pass the MAC security check, the response will be the error message "MAC does not correspond to the bank's calculation" and the RESPCODE data gets the value "Error".

If the payment cannot be found or several payments have been made under the same reference, the payment data will not be returned. Instead, the error message

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“Payment not found” is delivered as a response. The query data will be shown in the program format part (upon request).

HTML responses (RESPTYPE="html"):

- Plain HTML response: RESPDATA not included
- Plain payment template: RESPDETL not included
- Payment template and program-format data:
RESPDETL="Y"

Button (“Register”) for transmitting payment data automatically: RESPDATA included.

6 Refunding an e-payment

6.1 General

By using the refund of e-payment function, the seller using e-payment can refund the entire sum of a purchase paid by e-payment, or a part of it, to a customer. Refunding the payment may be necessary, for example, if the order in question cannot be delivered, the final price of the purchase is not known at the time of purchasing or the buyer returns the product in accordance with the regulations governing mail-order selling.

6.2 Restrictions

Refunding is restricted as follows:

- The amount of the refund cannot exceed the amount of the original payment
- The refund must be made to the account from which the original payment was made
- Only one refund can be made for each payment
- The refund must be made within thirteen (13) weeks from the original payment date.
- Does not apply to e-payments with a due date. The original e-payment must be an express payment.

6.3 Using the e-payment refund in the seller’s service

The seller forms a refund request, which includes i.a. the seller ID, the payment specifier or reference and the amount to be refunded and its currency. The request is protected with a MAC for identification of the customer and against alteration of the message and data communications. The refund request is sent to the bank’s server as a form in the HTTP format using an encrypted SSL connection, and the bank’s server will respond in a similar manner.

The response has been formed in such a manner that the seller’s server can handle the response automatically.

6.4 E-payment refund data and format

The e-payment refund is in the form format and it must include the following data:

Form action

<https://epmt.nordea.fi/cgi-bin/SOLOPM09>

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Form method
Post

automatically: RESPDATA included.

Field	Data	Data name	Value	Form	MAC
1.	* Refund version	VERSION	"0004"	AN 4	x
2.	* Time of refund request	TIMESTAMP	In format "VVVVKKPPHHMMSSnnnn", in which nnnn is the ordinal number if needed	N 18	x
3.	* Seller ID	RCV_ID	Merchant ID	AN 15	x
4.	Payment language	LANGUAGE	1= Finnish 2= Swedish 3= English	N 1	x
5.	Response type	RESPTYPE	"html" => Response returned in the HTML format "xml" => Response returned in the XML format	A 4	x
6.	Additional data in the response	RESPDATA	HTML: If the response should include a form data group, enter the full action address of the form data group here. If the field is blank, no form data group will be linked to the response. XML: If you want another mime type than "text/html" for a response in the XML format, specify it in this field.	AN 20	x
7.	Displaying of program-format data	RESPDETL	" " No program-format data to the visible HTML "Y" Program-format data is displayed	A 1	x
8.	Code specifying the original e-payment, which is refunded (either stamp or ref mandatory)	STAMP	Code of the original payment given by the merchant	AN 20	x
9.	Reference specifying the original e-payment, which is refunded (either stamp or ref mandatory)	REF	Standard reference	AN 25	x
10.	* Refunded amount	AMOUNT	e.g. 990.00 Please note that the amount may not exceed the amount of the original e-payment.	AN 19	x
11.	* Currency code	CUR	EUR The value of the currency code is included in the MAC field of the refund after the amount field.	A 3	x
12.	Refund reference	REF2	Payment's refund reference	AN 25	x
13.	* MAC key version	KEYVERS	Key version, e.g. 0001	N 4	x
14.	* Algorithm used	ALG	"01"	N 2	x
15.	* MAC authentication code of the refund	MAC	The MAC authentication code of the refund is formed from the data included in	AN 32	x

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			the refund. If a field is left out (e.g. REF), the field in question and the & character are excluded from the MAC calculation.		
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The data may not include characters <, >, ' , " .

* = mandatory

x = information included in the MAC-calculation

An example of MAC calculation:

0004&199911161015500001&12345678&1&html&http://tuote.kauppa.net/ok.htm&Y&501&5&EUR&0001&01&LEHTI&

Result of the calculation: 5BF778B94968CEDB1C230E7A28A8EF6E

6.5 Refund request response data

The response contains the following data:

Field	Data	Data name	Value	Format	MAC
1.	Refund version	VERSION	"0004"	AN 4	x
2.	Time of refund request	TIMESTAMP	In format "VVVKKPPHHMMSSnnnn", in which nnnn is the ordinal number if needed	N 18	x
3.	Seller ID	RCV_ID	Merchant ID	AN 15	x
4.	Return data	RESPCODE	"OK" Refund successful "Notfound" if the payment is not found "Refund" Refund not made	A 8	x
5.	Code of the original payment	STAMP	Code of the original payment given by the merchant	AN 20	x
6.	Merchant's account number	RCV_ACCOUNT	Account from which the refund is made	AN 42	x
7.	Refund reference	REF	Standard reference	AN 25	x
8.	Refund payment date	DATE	"EXPRESS" or "yyyyMMdd"	AN 10	x
9.	Refunded amount	AMOUNT	FOR EXAMPLE: 000000009900 (= EUR 99)	AN 13	x
10.	Refund archive ID	PAID	Archive ID of refunded payment	AN 16	x
11.	Payment currency	CUR	EUR	A 3	x
12.	Payment status	STATUS	Prod=production payment, Test=test payment	A 4	x
13.	MAC key version	KEYVERS	As in e-payment, key version, e.g. 0001	N 4	x
14.	Algorithm used	ALG	"01"	N 2	x
15.	MAC authentication code of the refund response	MAC	The MAC authentication code of the refund is formed from the fields included in the refund response. If a field is left out, the field in question and the & character are excluded from the MAC calculation. In addition, the field REF and the & character are excluded from the MAC calculation if the field has not been included in the field REF2 of the refund request.	AN 32	x

6.6 Response format in different situations

If the refund does not pass the MAC security check, the response will be the error message “MAC does not correspond to the bank’s calculation” and the RESPCODE data gets the value “Notfound”.

If an attempt is made to refund the same e-payment twice, the message “Payment already at the bank” will appear.

If the amount to be refunded exceeds the amount of the original payment, the message “Amount exceeds the allowable limit” will appear.

If the payment cannot be found or several payments have been made under the same reference, the payment data will not be returned. The query data will be shown in the program format part (upon request).

HTML responses (RESPTYPE="html"):

- Plain HTML response: RESPDATA not included
- Plain payment template: RESPDETL not included
- Payment template and program-format data: RESPDETL="Y"
- Button (“Register”) for transmitting payment data automatically: RESPDATA included.

7 Terms used

Seller	An online merchant that offers products or services for purchase in its own online store or an online store built by an online store supplier
PSP	Payment service provider
Buyer	A customer of an online store who orders products or services and pays for his or her purchases with e-payment
Testing/test seller	It is possible to test the functionality of e-payment with test merchant test codes of a test merchant provided in section 2.3 “Testing” of this Service Description before concluding the agreement or the adoption date of the service. <ul style="list-style-type: none"> • Seller ID (RCV ID) 12345678 and MAC key LEHTI
Testing/test buyer	Test buyer access codes that have been pre-entered when testing e-payment
TLS (Transport Layer Security) / SSL (Secure Socket Layer) encryption technology	Encryption technology used for exchanging information between the buyer and Nordea, which makes it impossible for third parties to read or change the transmitted information
MAC key	A 32-character code delivered by the bank by post in an envelope and used for calculating the MAC
MAC key version	A 4-digit version number indicated in the MAC key envelope delivered by the bank by post Note! The version number changes only when a new MAC key has to be ordered.
MAC authentication code	A string of 32 characters produced by the system when the information required for forming the MAC has been entered The received value is taken to the Payment MAC field.

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MD5 algorithm	MD5 is a so-called message digest algorithm which is used for revealing whether the content of a file has changed (e.g. deliberate forgery or data transfer error).
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8 Advice and support

E-support for corporate customers assists in problem situations. It is open on all banking days. Service will be quicker if you provide the seller ID.

<https://www.nordea.fi/en/business/get-help/>