

E-payment

Service description

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1 E-payment

1.1 General description

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

The seller, i.e. the service provider, is notified of an executed payment by the e-payment reference number. The service provider also has query and refund functions at its disposal. With the query function the service provider can check that an e-payment was made successfully. With the refund function the service provider can refund a purchase paid by e-payment, or a part of it.

1.2 Advantages

The service provider need not send a separate invoice to the buyer or deliver goods C.O.D. This reduces invoicing and packaging costs.

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

The service provider receives the payment immediately to its account, and can also verify it immediately. The service provider 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 service provider need not acquire new software for e-payment because the payment service is based on the same Internet technology that the service provider uses in its services.

A Finnish service provider can also adopt e-payment in other Nordea Banks in the Nordic and Baltic region. The adoption of the service requires that the service provider 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 service is available 24 hours a day.

1.4 Security

In the communication between the buyer and Nordea, TLS/SSL encryption technology is used to encrypt the messages and to provide them with MACs (message authentication codes), which are programmed to change constantly. This prevents an outsider from viewing or altering the transmitted data. The SSL encryption 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 buyer's account cannot be accessed by an outsider, because Nordea reliably identifies the buyer by his or her access codes (user ID and session-specific codes). The buyer also confirms each e-payment with a specific confirmation code.

The MAC guarantees the integrity and stability of data communication as well as the identification of the parties.

2 Service agreement, instructions and start-up

2.1 Service prerequisites

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

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

2.2 Service agreement

The service provider and Nordea draw up a written service agreement. The service provider information is registered at the bank, and the service provider is also given a customer ID. The bank requires the service provider to use a verifier for its incoming e-payments, and also provides it with a MAC.

The service provider notifies the branch of any changes in its services or information. When necessary, the branch will amend the agreement with the changed information.

2.3 Testing

Before making the agreement it is possible to test e-payment in its working environment by using test codes of a test service provider.

Test codes of a test service provider:

With the verifier: The service provider's customer ID (RCV_ID) is 12345678 and the MAC key: LEHTI.

The test account is one of the following: 29501800000014 or 29501800008512

A test service provider can receive test payments only from a test buyer. The access codes of the test buyer have been pre-entered in the test payment. With the test the service provider 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. However, you will receive an answer, such as PAYMENT NOT FOUND. See chapters 6.5 and 7.6.

2.4 Instructions for the use of e-payment

2.4.1 Name of payment method

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

2.4.2 Use of the Nordea Button

The service provider 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.

With the signing of the service agreement the service provider undertakes to use the Nordea Button as specified by Nordea's terms and conditions of the e-payment. The service provider is not entitled to produce the Nordea Button by itself or to alter it.

The company must copy the Nordea Button over to its server from Nordea's server at the address.

www.nordea.com/nordeabutton

When a company notifies on its website that it offers Nordea's e-payment as a method of payment, the Nordea logo may be used.

The seller company can copy the Nordea logo to its server from Nordea's server at the address www.nordea.com/masterbrand/768002

2.4.3 Implementation of e-payment in the service provider's service

The agreement requires the service provider to use the Nordea Button in connection with payments. The Nordea Button is a means for the customer to recognise the payment function.

E-payment should be implemented in the service provider's Internet service as simply and straightforwardly as possible. For example, the use of frames/framesets or windowing technology is not recommended.

Do not send the e-payment to the buyer through e-mail or other such means.

3 Mobile e-payment

3.1 General description

The e-payment version 0003 offers an opportunity to utilise e-payment optimised for mobile terminals.

A separate service agreement is not needed. The service provider must have at least one site that has been adapted to the requirements of the browser used in mobile terminals. The buyer needs to have Nordea's access codes and a possibility to use a mobile terminal that supports a browser.

An e-payment optimised for mobile terminals is created by entering the value 'M' in field 18 of the data group for payment request (see chapter 5 Record descriptions). The buyer is presented a mobile e-payment that is adapted to a smaller screen. Otherwise, the mobile e-payment operates the same way as a regular e-payment.

4 Adoption of e-payment

The e-payment can be adopted by making an agreement on e-services with the bank at the service provider's account branch. In the agreement the service is defined and the adoption date is agreed upon.

The information that the service provider needs in the adoption phase is available in 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 service provider. (NB! If the MAC key should be posted to an address different from the service provider's address, this should be made known when concluding the agreement.) The delivery takes 3-4 weekdays.

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

New corporate customer

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

- on the Internet at www.nordea.fi / Contact us / Branch office search
- by telephone from Nordea Corporate Service, tel 0200 2121 (in Finnish, Mon-Fri 8.00 - 18.00, 0.11 euros/min + local network charge / mobile call charge) and 0200 2525 (in Swedish, Mon-Fri 9.00 - 16.30, local network charge / mobile call charge).

5 Record descriptions

5.1 General

The payment data given by the service provider is transmitted to the FORM data group. Expressed in HTML (hypertext markup language), the data group structure is the following:

```
<form
method="post"
action="https://solo3.nordea.fi/cgi-bin/SOLOPM01">
<input name="...." type="..." value="...">
</form>
```

Initial e-payment data:
Method=post
Server: //solo3.nordea.fi/...
Actual e-payment data:
Data name, type and value
End of e-payment

In the e-payment version 0003 the names of the fields can also be shown without the prefix SOLOPMT_. Thus it is possible to use, for example, the name VERSION instead of SOLOPMT_VERSION. This also applies to return data.

In the older e-payment versions the underline character is replaced with a hyphen, eg SOLOPMT-VERSION.

5.2 FORM data group for e-payment

F#	Data	Data name INPUT NAME=	Value VALUE=	Form	M/O
1.	Payment version	SOLOPMT_VERSION	"0003"	AN 4	M
2.	Payment specifier	SOLOPMT_STAMP	Code specifying the payment	N 1-20	M
3.	Service provider's ID	SOLOPMT_RCV_ID	Customer ID from the agreement form; entered without the hyphen	AN 8-15	M
4.	Service provider's account	SOLOPMT_RCV_ACCOUNT	Other than the default account	AN 8-15	O
5.	Service provider's name	SOLOPMT_RCV_NAME	Other than the default name	AN 1-30	O
6.	Payment language	SOLOPMT_LANGUAGE	1 = Finnish 2 = Swedish 3 = English	N 1	O
7.	Payment amount	SOLOPMT_AMOUNT	Eg 990.00	AN 4-19	M
8.	Payment reference	SOLOPMT_REF	Standard reference number	AN 2-20	O
9.	Payment due date	SOLOPMT_DATE	"EXPRESS" or "DD.MM.YYYY"	AN 4-10	M
10.	Payment message	SOLOPMT_MSG	Buyer's message	AN 420	O
11.	Return link	SOLOPMT_RETURN	Return address following payment	AN 120	M
12.	Cancel link	SOLOPMT_CANCEL	Return address if payment is cancelled	AN 120	M
13.	Reject link	SOLOPMT_REJECT	Return address for rejected payment	AN 120	M
14.	Payment MAC	SOLOPMT_MAC	Message authentication code	AN 32	M
15.	Payment confirmation	SOLOPMT_CONFIRM	YES or NO	A 3	O
16.	MAC key version	SOLOPMT_KEYVERS	Key version, eg 0001	N 4	M
17.	Currency code	SOLOPMT_CUR	EUR	A 3	M
18.	Terminal type	SOLOPMT_PMTTYPE	M	A 1	O

Explanations

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

M=mandatory data, O=optional data

In version 0003 the field names may also be shown without the prefix SOLOPMT_. For example, the name VERSION may be used instead of SOLOPMT_VERSION. This also applies to return data. In addition, the version 0003 supports e-payment optimised for mobile terminals.

Field 1 The Payment version number specifies the presentation form of the payment data. We accept versions 0002 and 0003 and recommend version 0003 when adopting the service. With regard to existing agreements, older versions are also supported.

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

Field 3 The Service provider ID is a code (called "Customer ID" in the agreement) given to the service provider by Nordea in its customer data register. The ID is used to retrieve the beneficiary's name and account number from the bank's register for the payment. The ID is stated in the agreement and is entered without a hyphen.

Field 6 By entering the Payment language, the service provider 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 number. The reference number is presented without the grouping and spaces used in the standard reference number presentation form.

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

Field 9 Payment due date. If the due date is indicated as 'EXPRESS', the transfer from the buyer to the service provider 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 realised 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 to the buyer's account statement. If the e-payment does not have a reference number, the message data is transmitted to both the buyer's and the service provider's account statements.

Field 11 Return address is a checkpoint in the service provider's service if the buyer has confirmed the payment. The data must comprise a complete link in HTML (hypertext markup language) format, to which the service provider may attach a so-called query-string or parameter data.

For example:

VALUE="http://product.company.fi/order/thankyou.htm" OR
VALUE="http://product.company.fi/cgi-bin/thankyou?orderno=1234"

Field 12 Cancel address is a checkpoint in the service provider's service if the buyer wishes to cancel an e-payment. The data must comprise the complete URL address in HTML format, for example:

VALUE= "http://product.company.fi/order/invoice.htm"

Field 14 By using the MD5 algorithm, the Payment MAC (see chapter 5.3) is calculated from the encrypted data of the payment and the service provider's MAC key. The MAC is saved in CAPITAL letters.

Field 15 If the value is "YES", the service provider receives information on the payment processing through all return links (payment OK, cancelled, rejected). NB! If the payment is cancelled or rejected, the service provider receives no detailed information on the payment.

Field 16 indicates the 4-digit version number of the used MAC key. The version number is provided in the MAC key envelope posted to the service provider after concluding the agreement. The version number is mandatory.

Field 17 shows the currency code. The currency code (EUR) must always be stated in the field.

Field 18 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.

5.3 MAC of e-payment

The payment verifier is calculated as follows:

1. A character string is generated out of the following fields

SOLOPMT_VERSION&
SOLOPMT_STAMP&
SOLOPMT_RCV_ID&
SOLOPMT_AMOUNT&
SOLOPMT_REF&
SOLOPMT_DATE&
SOLOPMT_CUR&
Service provider's MAC key&

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

Note! The e-payment version is 0003 or 0002 and the data must be presented in the order stated above. The version 0003 is recommended.

Example: 0003&1998052212254471&12345678&570,00&55&EXPRESS&EUR&LEHTI&

0003 = version (M)
1998052212254471 = payment specifier (M)
12345678 = service provider's ID (M)
570,00 = amount (M)
55 = reference number (M)
EXPRESS = express payment (M)
EUR = currency code
LEHTI = service provider's MAC key

2. Using the MD5 algorithm, a hash value is calculated from the above character string and converted

into a hexadecimal presentation form, the maximum length of which is 32 characters.

The result of the calculation with the above values is 60FC3A5668E0AFF3CB27CF32C610CB70

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

The service provider's MAC key is a key provided by the Bank. It is 32-64 characters long and service provider-specific, and it is delivered by mail after the agreement is made.

5.4 E-payment return data

The MAC in the e-payment service ensures that the buyer returns to the service provider's site from Nordea's e-payment service after a successful, rejected or cancelled e-payment.

PLEASE NOTE: The final payment and money transfer still have to be confirmed from the account statement or reference transaction records, or by making a separate transaction query.

If the service provider has asked for additional information on the return link and a control code by giving the value "YES" in the e-payment field "SOLOPMT_CONFIRM", the e-payment system inserts the following parameter information in query-string format at the end of the return message:

```
SOLOPMT_RETURN_VERSION = 0002 or 0003
SOLOPMT_RETURN_STAMP = code specifying the payment
SOLOPMT_RETURN_REF = payment's reference number
SOLOPMT_RETURN_PAID = payment code at the bank's system
SOLOPMT_RETURN_MAC = return MAC
```

The return data format (and content) corresponds to the fields in the original payment.

SOLOPMT_RETURN_PAID is return data for express payments and it shows the payment code 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 message.

SOLOPMT_RETURN_MAC is calculated in the same way as in the original e-payment by generating a character string from the following fields in the return message:

```
SOLOPMT_RETURN_VERSION&
SOLOPMT_RETURN_STAMP&
SOLOPMT_RETURN_REF&
SOLOPMT_RETURN_PAID& (only for express payments)
Service provider's MAC&
```

NB! The 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 it is converted into a hexadecimal, 32 characters long presentation form. This is returned to the service provider in the return parameter SOLOPMT_RETURN_MAC.

Example of the use of the return message and MAC:

- original return link:
VALUE="http://product.company.fi/cgi-bin/thankyou?orderno=1234"
- on return to the service provider, the return URL is as follows:
http://product.company.fi/cgi/thankyou?orderno=1234&SOLOPMT_RETURN_VERSION=0003&SOLOPMT_RETURN_STAMP=123456&SOLOPMT_RETURN_REF=57834465&SOLOPMT_RETURN_PAID=960531258874B85991&SOLOPMT_RETURN_MAC=35C92208C7A1B02CEA10A65447D65825

6 E-payment query

6.1 Introduction

Service providers can use the e-payment query function to check situations in which the service provider has not received reliable return data on an e-payment as described above.

6.2 Using the e-payment query in the service provider's service

The e-payment query is designed as an automatic, program-based function through which a service provider can make a query of all its payments or of open payments. The service provider's Internet server can, for example, browse orders to which the server has not received normal payment acknowledgements. When there is an order lacking acknowledgement, the server forms a query transaction, which includes the service provider's ID and the payment code and which has been protected for identification and against alteration with a MAC (Message Authentication Code). The query is sent to the bank's server as form in HTTP language 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 form, 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 service provider's server can handle the response automatically and update the order data.

6.3 E-payment query data and format

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

Form action

<https://solo3.nordea.fi/cgi-bin/SOLOPM10>

Form method

post

Field	Data	Name of data	Value	Content and length	M/O
1.	Query version	SOLOPMT_VERSION	0001 (always this value)	AN 4	M
2.	Time of query	SOLOPMT_TIMESTM P	in format "YYYYMMDDHHMMSSnnnn" where nnnn is the ordinal number, if needed	N 18	M
3.	Service provider's ID	SOLOPMT_RCV_ID	Service provider's ID in the agreement; entered without a hyphen	AN 15	M
4.	Language code	SOLOPMT_LANGUAG E	1= Finnish 2= Swedish 3= English	N 1	O
5.	Response type	SOLOPMT_RESPTYP E	"html" => Response returned in html format "xml" => Response returned in xml format	A 4	O
6.	Additional data for the response	SOLOPMT_RESPDAT A	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 empty, no form data group will be linked to the response. Xml: If you want another mime type than "text/html" for a response in xml format, specify it in this field.	AN 120	O
7.	Displaying of program-form data	SOLOPMT_RESPDET L	" ": no program-form data to the visible html "Y": program-form data is displayed	A 1	O
8.	Code specifying the original e-payment, which is queried (either stamp or ref obligatory)	SOLOPMT_STAMP	Code of the original payment given by the service provider	N 20	O
9.	Reference specifying the original e- payment, which is queried (either stamp or ref obligatory)	SOLOPMT_REF	Standard reference	AN 20	O
10.	Payment amount	SOLOPMT_AMOUNT	eg 0000000009900 (=99 euros)	AN 13	O
11.	Payment currency	SOLOPMT_CUR	EUR	A 3	O
12.	Version of MAC key in use	SOLOPMT_KEYVERS	Key version, eg 0001	N 4	M
13.	Used algorithm	SOLOPMT_ALG	"01"	N 2	M
14.	Payment MAC	SOLOPMT_MAC	The authentication code of the query, SOLOPMT_MAC, is formed from the data in the query. If a field is left out (SOLOPMT_REF), the field in question is and the & character are excluded from the MAC calculation.	AN 32	M

An example of MAC calculation:

0001&199911161024590001&12345678&1&html&http://158.233.9.9/hsmok.htm&Y&501&0001&01
&LEHTI&

Result of the calculation:

D5543FF001A863681A39DD84DD7E33FB

6.4 E-payment query, response data

The response includes the following data:

Field	Data	Name of data	Value	Content and length
1.	Query version	SOLOPMT_VERSION	0001 (always this value)	AN 4
2.	Time of query	SOLOPMT_TIMESTAMP	In format "YYYYMMDDHHMMSSnnnn", where nnnn is the ordinal number, if needed	N 18
3.	Service provider's ID	SOLOPMT_RCV_ID	Service provider's ID	AN 15
4.	Return data	SOLOPMT_RESPCODE	"OK" if the payment is found and accepted "Notfound" if the payment is not found "Error" if the payment is unclear (contact the bank)	A 8
5.	Code of the original payment	SOLOPMT_STAMP	Code of the original payment given by the service provider	N 20
6.	Service provider's account	SOLOPMT_RCV_ACCOUNT	Other than default account	AN 15
7.	Payment reference	SOLOPMT_REF	Standard reference	AN 20
8.	Payment date	SOLOPMT_DATE	in format "yyymmdd"	AN 10
9.	Payment amount	SOLOPMT_AMOUNT	eg 000000009900 (=EUR 99)	AN 13
10.	Payment currency	SOLOPMT_CUR	EUR	A 3
11.	Payment filing code for express payments	SOLOPMT_PAID	Bank's filing code	AN 16
12.	Payment status	SOLOPMT_STATUS	Prod=production payment Test=test payment	A 4
13.	MAC key version	SOLOPMT_KEYVERS	As in e-payment, key version, eg 0001	N 4
14.	Used algorithm	SOLOPMT_ALG	"01"	N 2
15.	Query MAC	SOLOPMT_MAC	The authentication code of the query	AN 32

6.5 Response format in different situations

If the query does not pass the MAC security check, the response will be an http error message, response status 404, http error 404 url not found.

If the payment cannot be found or several payments have been made under the same reference, the payment data will not be returned. Instead, an error message "Payment not found" is delivered as a response. The query data will be shown in the program form part (upon request).

Html responses (SOLOPMT_RESPTYPE="html"):

- Plain html response: SOLOPMT_RESPDATA not included.
- Plain payment base: SOLOPMT_RESPDETL not included.
- Payment base and program form data: SOLO_RESPDETL="Y".
- Button ("Register") for transmitting payment data automatically: SOLO_RESPDATA included.

7 Refunding an e-payment

7.1 General

By using the refund function of e-payment a service provider can refund the entire sum of an e-payment, or a part of it, to a customer. Refunding the payment may be necessary if the order in question cannot be fulfilled, the final price of the purchase is not known at the time of purchasing or the buyer returns the product according to the regulations governing mail-order selling.

7.2 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 five (5) weeks from the original payment date.

7.3 Using the e-payment refund in the service provider's service

The service provider forms a refund request, which includes the service provider's ID, the payment identifier or reference and the amount to be refunded and its currency. The request is protected with a MAC (Message Authentication Code) for identification of the customer and against alteration of the message and data communication. The request is sent to the bank's server as an HTTP form using an encrypted SSL connection. The bank's server will respond in a similar manner.

The response is formed in such a manner that the service provider's server can handle the reply automatically.

7.4 E-payment refund data and format

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

Form action

<https://solo3.nordea.fi/cgi-bin/SOLOPM09>

Form method

Post

Field	Data	Name of data	Value	Content and length	M/O
1.	Refund version	SOLOPMT_VERSION	0001 (always this value)	AN 4	M
2.	Time of refund request	SOLOPMT_TIMESTAMP	in format YYYYMMDDHHMMSSnnnn, where nnnn is the ordinal number, if needed	N 18	M
3.	Service provider's ID	SOLOPMT_RCV_ID	Service provider's ID	AN 15	M
4.	Payment language	SOLOPMT_LANGUAGE	1= Finnish 2= Swedish 3= English	N 1	O
5.	Response type	SOLOPMT_RESPTYPE	"html" => The response will be returned in html format "xml" => The response will be returned in xml format	A 4	O
6.	Additional data fore response	SOLOPMT_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 empty, no form data group will be linked to the response. xml: If you want another mime type than "text/html" for a response in xml format, specify it in this field..	AN 120	O
7.	Displaying of program- form data	SOLOPMT_RESPDETL	" ": no program-form data to the visible html "Y": program-form data is displayed	A 1	O
8.	Code specifying the original e-payment which is refunded (either stamp or ref obligatory)	SOLOPMT_STAMP	Code of the original payment given by the service provider	N 20	O
9.	Reference specifying the original e-payment which is refunded (either stamp or ref obligatory)	SOLOPMT_REF	Standard reference	AN 20	O
10.	Refunded amount	SOLOPMT_AMOUNT	eg 990,00 Note! The amount may not exceed the amount of the original e-payment	AN 19	M
11.	Currency code	SOLOPMT_CUR	EUR The value of the currency code is included in the MAC field of the refund after the amount field.	A 3	M
12.	Refund reference	SOLOPMT_REF2	Reference of the e-payment refund	AN 20	O
13.	Version of MAC key in use	SOLOPMT_KEYVERS	Key version, eg 0001	N 4	M
14.	Used algorithm	SOLOPMT_ALG	"01"	N 2	M
15.	Refund MAC	SOLOPMT_MAC	The authentication code of the refund, SOLOPMT_MAC, is formed from the data in the refund request. If a field is left out (SOLOPMT_REF), the field in question and the & character are excluded from the MAC calculation.	AN 32	M

An example:

0001&199911161015500001&12345678&1&html&http://158.233.9.9/hsmok.htm&Y&501&5&0001
&01&LEHTI&

Result of the calculation:

0ADAD0C555F1EC6351A8CBEE93309B2D

7.5 Refund request response data

The response includes the following data:

Field	Data	Name of data	Value	Content and length
1.	Refund version	SOLOPMT_VERSION	0001 (always this version)	AN 4
2.	Time of refund request	SOLOPMT_TIMESTAMP	in format "YYYYMMDDHHMMSSnnnn", where nnnn is the ordinal number, if needed	N 18
3.	Service provider's ID	SOLOPMT_RCV_ID	Service provider's ID	AN 15
4.	Return data	SOLOPMT_RESPCODE	"OK" Refund successful "Notfound" The payment is not found "Error" Refund not made	A 8
5.	Code of the original payment	SOLOPMT_STAMP	Code of the original payment given by the service provider	N 20
6.	Service provider's account number	SOLOPMT_RCV_ACCOUNT	The account from which the refund is made	AN 15
7.	Refund reference	SOLOPMT_REF	Standard reference	AN 20
8.	Refund payment date	SOLOPMT_DATE	"EXPRESS" or "YYYYMMDD"	AN 10
9.	Refunded amount	SOLOPMT_AMOUNT	eg 0000000009900 (=EUR 99)	AN 13
10.	Refund filing code	SOLOPMT_PAID	Filing code of refunded payment	AN 16
11.	Currency of the payment	SOLOPMT_CUR	EUR	A 3
12.	Payment status	SOLOPMT_STATUS	Prod=production payment Test=test payment	A 4
13.	MAC key version	SOLOPMT_KEYVERS	As in e-payment, key version, eg 0001	N 4
14.	Used algorithm	SOLOPMT_ALG	"01"	N 2
15.	Refund MAC	SOLOPMT_MAC	The authentication code of the refund, SOLOPMT_MAC, is formed from the fields included in the refund request response. If the field is left out, the field in question and the & character are excluded from the MAC calculation. In addition, the field SOLOPMT_REF and the & character are excluded from the MAC calculation if the field SOLOPMT_REF has not been included in the field SOLOPMT_REF2 of the refund request.	AN 32

7.6 Response format in different situations

If the refund does not pass the MAC security check, the response will be an http error message, response status 404, http error 404 url not found.

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 "The 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-form part (upon request).

Html responses (SOLOPMT_RESPTYPE="html"):

- Plain html response: SOLOPMT_RESPDATA not included.
- Plain payment base: SOLO_RESPDETL not included.
- Payment base and program-form data: SOLO_RESPDETL="Y"
- Button ("Register") for transmitting payment data automatically: SOLO_RESPDATA included.

8 Terms used

Service provider	An online merchant who offers products/services for purchase in its own online store or an online store built by an online store supplier
Buyer	A customer of an online store who orders products/services and pays for his or her purchases with e-payment
Testing / Test service provider	It is possible to test the functionality of the e-payment with test codes of a test service provider given in chapter 2.3 "Testing" of this service description already before concluding the agreement or the adoption date of the service <ul style="list-style-type: none"> Service provider's code (RCV ID) 12345678 and MAC key LEHTI
Testing / Test buyer	Access codes of a test buyer that have been pre-entered when testing the e-payment
Session-specific codes	Access codes in the code card that include the user ID, codes and confirmation codes
Confirmation codes	Confirmation codes in the code card given by the bank that are used in a random order defined by the system each time to confirm an 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. NB! The version number changes only when a new MAC key has to be ordered.
MAC	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.
MD5 algorithm	MD5 is a so called message digest algorithm that is used for revealing whether the content of a file has changed (eg deliberate forgery or data transfer error)

9 Information and support

If you have any problems, please contact our E-support for corporate customers, open on all banking days. For faster service mention your service provider ID.

E-support for corporate customers

in English 0200 67230

0.11 euros/min + local network charge / mobile call charge, 9.00 - 18.00 on banking days, 9.00 - 14.00 on short banking days

in Finnish 0200 67210

0.11 euros/min + local network charge / mobile call charge, 8.00 - 18.00 on banking days, 8.00 - 14.00 on short banking days

in Swedish 0200 67220

0.11 euros/min + local network charge / mobile call charge, 9.00 - 16.30 on banking days, 9.00 - 14.00 on short banking days