



Guideline
Exchange Rate and Currency

Version 1.0



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1 introduction

The Northern European Subset (NES) group was established to enable interoperability of procurement data between users of the Universal Business Language (UBL). UBL is a royalty-free library of XML documents addressing the requirements of electronic procurement and international trade and transportation. Its second version (UBL 2.0) was released as an OASIS standard in December 2006. NES members contributed extensively to the development of this version of the standard.

The focus of NES is to define the specific use of UBL 2.0 electronic procurement documents domestically and between the member countries. The definition covers semantic interoperability within and between all business sectors, public and private.

This guideline is one of a series of documents describing the purpose and use of the business documents that comprise the NES subset of UBL 2.0.

All cardinalities shown in this document represent elements and associations at NES library level; see 'NES Information Model Architecture' for further information.

1.1 purpose

The purpose of this guideline is to specify the use of classes and elements used to specify exchange rates and currency.

1.2 summary

- Exchange Rate contains information about rates of exchange between currencies
- currencies alternative to the document currency, when required are qualified and stated at document level
- currency exchange should be calculated to 4 decimals



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2 exchange rate classes and elements

Exchange Rate describes the rate of exchange between two currencies; a source currency and a target currency. As well as the basis on which the exchange is calculated, Exchange Rate may also provide information about:

- the date on which the rate is set
- the source of the rate (exchange market)
- a contract for the exchange.

In NES, Exchange Rate information may be provided in Invoice and Credit Note at document level. In these documents, Exchange Rate is qualified to specify a rate of exchange between:

- the document currency and a currency for tax amounts (TaxExchangeRate)
- the document currency and a currency for price amounts (PricingExchangeRate)
- the document currency and a currency for payment amounts (PaymentExchangeRate)
- the document currency and an alternative currency for payment amounts (PaymentAlternativeExchangeRate)

In the NES library level documents, all four qualifications are available for use. In the NES basic documents, only Tax Exchange Rate may be used.

Note: Exchange Rate may also be provided in Debit Note, Self Billed Invoice, Self Billed Credit Note and Reminder at document level and in Remittance Advice and Statement at line level.

2.1 Exchange Rate

Exchange Rate is described in the Exchange Rate Class. Associated information is described in Foreign Exchange Contract.

The Calculation Rate in Exchange Rate must be specified with 4 decimals using the point (.) as decimal separator. An exchange rate must not be zero or negative.

2.1.1 Exchange Rate elements

name	definition	cardinality
SourceCurrencyCode	the reference currency for the Exchange Rate; the currency from which the exchange is being made. ISO 4217 code list applies	1
SourceCurrencyBaseRate	the unit base of the source	0..1

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	currency for currencies with small denominations	
TargetCurrencyCode	the target currency for the Exchange Rate; the currency to which the exchange is being made. ISO 4217 code list applies	1
TargetCurrencyBaseRate	the unit base of the target currency for currencies with small denominations	0..1
ExchangeMarketID	identifies the currency exchange market used as the source of the Exchange Rate	0..1
CalculationRate	the factor applied to the source currency to calculate the target currency	0..1
MathematicOperatorCode	an identifier for whether the Calculation Rate should be used to multiply or to divide, expressed as a code	0..1
Date	the date of the Exchange	0..1
ForeignExchangeContract	an association to Foreign Exchange Contract	0..1

2.2 Foreign Exchange Contract

Foreign Exchange Contract describes a contract for currency exchange.

2.2.1 Foreign Exchange Contract elements

name	definition	cardinality
ID	an identifier for the Contract	1
IssueDate	the date on which the Contract was issued	0..1
IssueTime	the time at which the Contract was issued	0..1
ContractTypeCode	the type of Contract, expressed as a code	0..1

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ContractType	the type of Contract, expressed as text	0..1
<i>ContractDocumentReference</i>	an association to Document Reference	0..1

3 use of Currency Code

As well as its use in the Exchange Rates classes, currency code must also be specified for all amount elements using the currencyID attribute.

A Currency Code element may be specified optionally, without an Exchange Rate, as follows:

3.1 Currency Code

name	definition	used in
DocumentCurrencyCode	the explicit default currency for the document	Order Order Change Order Response Invoice Credit Note Debit Note Reminder Self Billed Invoice Self Billed Credit Note Remittance Advice Statement
TaxCurrencyCode	the currency for tax amounts	Order * Order Change * Order Response Invoice Credit Note Debit Note Reminder Self Billed Invoice Self Billed Credit Note Remittance Advice
PrincingCurrencyCode	the currency for price amounts	Request for Quotation * * Quotation Order (not in NES) Order Change Order Response

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		Invoice (NES library level) Credit Note (NES library level) Debit Note Reminder Self Billed Invoice Self Billed Credit Note Remittance Advice
PaymentCurrencyCode	the currency for payment amounts	Invoice (NES library level) Credit Note (NES library level) Debit Note Reminder Self Billed Invoice Remittance Advice
PaymentAlternativeCurrencyCode	an alternative currency for payment amounts	Invoice (NES library level) Credit Note (NES library level) Debit Note Reminder Self Billed Invoice Remittance Advice
RequestedInvoiceCurrencyCode	a requested currency for an Invoice (associated with an Order document)	Order Order Change
TaxScheme.CurrencyCode	the currency in which the tax is collected and reported, expressed as a code	TaxScheme
FinancialAccount.CurrencyCode	the currency in which the Financial Account is held, expressed as a code	FinancialAccount

* for Tax Currency Code, Order and Order Change request that associated Invoices have tax amounts expressed in the tax currency (not relevant in Self



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Billing arrangements)

- * * for Pricing Currency Code, Request for Quotation requests that associated Quotations have price amounts expressed in the pricing currency

4 examples

4.1 declaration of Document Currency

Document Currency is specified at document level as follows:

```
<cbc:DocumentCurrencyCode>DKK</cbc:DocumentCurrencyCode>
```

4.2 Currency Code for an Amount element

All amounts in NES documents must be specified with a currency code. This is achieved using the "currencyID" attribute in which the currency code is entered according to the ISO 4217 code list e.g.

```
<cbc:LineExtensionTotalAmount currencyID="SEK">720.00</cbc:LineExtensionTotalAmount>
```

4.3 Exchange Rate

The example below shows that, when converting from Icelandic Kronur to Norwegian Kroner, the amount is multiplied by a factor of 0.0911, and that the exchange rate was established on March 15th 2007.

```
<cac:ExchangeRate>  
  <cbc:SourceCurrencyCode>ISK</cbc:SourceCurrencyCode>  
  <cbc:TargetCurrencyCode>NOK</cbc:TargetCurrencyCode>  
  <cbc:CalculationRate>0.0911</cbc:CalculationRate>  
  <cbc:OperatorCode>multiply</cbc:OperatorCode>  
  <cbc:Date>2007-03-15</cbc:Date>  
</cac:ExchangeRate>
```

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4.4 Exchange Rate with reference to a contract

The example below is the same as in 4.3 above with a reference to an exchange market and a Foreign Exchange Contract.

```
<cac:ExchangeRate>
  <cbc:SourceCurrencyCode>ISK</cbc:SourceCurrencyCode>
  <cbc:TargetCurrencyCode>NOK</cbc:TargetCurrencyCode>
  <cbc:ExchangeMarketID>DenStoreBank</cbc:ExchangeMarketID>
  <cbc:CalculationRate>0.0911</cbc:CalculationRate>
  <cbc:OperatorCode>multiply</cbc:OperatorCode>
  <cbc:Date>2007-03-15</cbc:Date>
  <cac:ForeignExchangeContract>
    <cbc:ID>700345</cbc:ID>
    <cbc:ContractType>Valuta aftale</cbc:ContractType>
  </cac:ForeignExchangeContract>
</cac:ExchangeRate>
```

4.5 Tax Exchange Rate

Tax Exchange Rate should be specified at document level when a Tax Currency Code is specified.

The example below illustrates an invoice with the document currency "SEK", and settlement of VAT in "DKK".

```
...
<cbc:DocumentCurrencyCode>SEK</cbc:DocumentCurrencyCode>
...
<cbc:TaxCurrencyCode>DKK</cbc:TaxCurrencyCode>
...
<cac:TaxExchangeRate>
  <cbc:SourceCurrencyCode>SEK</cbc:SourceCurrencyCode>
  <cbc:TargetCurrencyCode>DKK</cbc:TargetCurrencyCode>
  <cbc:CalculationRate>0.8070</cbc:CalculationRate>
  <cbc:OperatorCode>multiply</cbc:OperatorCode>
  <cbc:Date>2006-11-20</cbc:Date>
</cac:TaxExchangeRate>
...
<cac:TaxTotal>
  <cbc:TaxAmount currencyID="DKK">581.04</cbc:TaxAmount>
  ...
  <cac:TaxSubtotal>
    ...
    <cbc:TaxAmount currencyID="DKK">581.04</cbc:TaxAmount>
    <cbc:TransactionCurrencyTaxAmount currencyID="SEK">720.00
      </cbc:TransactionCurrencyTaxAmount>
  </cac:TaxSubtotal>
</cac:TaxTotal>
```

4.6 Tax Currency - alternative expressions

Tax Currency in a document can be expressed in two ways:

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1. using the Tax Currency Code at document level (recommended)
2. using the Currency Code in Tax Scheme (see 'NES Guideline - Tax' for more detailed tax information)

Tax Exchange Rate should also be specified at document level when a Tax Currency Code is specified (see below)

Example 1 - using Tax Currency Code

```
...  
<cbc:TaxCurrencyCode>GBP</cbc:TaxCurrencyCode>  
...
```

Example 2 - using Tax Scheme

```
...  
<cac:TaxScheme>  
  ...  
  <cbc:CurrencyCode>GBP</cbc:CurrencyCode>  
  ...  
</cac:TaxScheme>
```



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4.7 Pricing Exchange Rate

Pricing Exchange Rate can be specified at document level.

The example below illustrates an invoice with the document currency "DKK" and the prices specified in "USD".

Note that if Pricing Exchange Rate is specified, Pricing Currency Code must also be specified.

```
...
<cbc:DocumentCurrencyCode>DKK</cbc:DocumentCurrencyCode>
...
<cbc:PricingCurrencyCode>USD</cbc:PricingCurrencyCode>
...
<cac:PricingExchangeRate>
  <cbc:SourceCurrencyCode>USD</cbc:SourceCurrencyCode>
  <cbc:TargetCurrencyCode>DKK</cbc:TargetCurrencyCode>
  <cbc:CalculationRate>0.5928</cbc:CalculationRate>
  <cbc:OperatorCode>multiply</cbc:OperatorCode>
  <cbc:Date>2006-11-20</cbc:Date>
</cac:PricingExchangeRate>
...
<cac:InvoiceLine>
  ...
  <cbc:LineExtensionAmount currencyID="DKK">59.28</cbc:LineExtensionAmount>
  ...
  <cac:Price>
    <cbc:PriceAmount currencyID="USD">10.00</cbc:PriceAmount>
    ...
  </cac:Price>
</cac:InvoiceLine>
```

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4.8 Payment and Payment Alternative Exchange Rates

Payment and Payment Alternative Exchange Rate can be specified at document level.

The example below illustrates a Danish Invoice is payable in Euros. Note that the actual Euro amount is not stated in the document; the calculated Euro value is EUR 11,440.00 (DKK 88,000.00 x 0.1300)

Note that if Payment Exchange Rate and Payment Alternative Exchange Rate are specified, Payment Currency Code and Payment Alternative Currency Code respectively must also be specified.

```
...
<cbc:DocumentCurrencyCode>DKK</cbc:DocumentCurrencyCode>
...
<cbc:PaymentCurrencyCode>EUR</cbc:PaymentCurrencyCode>
...
<cac:PaymentExchangeRate>
  <cbc:SourceCurrencyCode>DKK</cbc:SourceCurrencyCode>
  <cbc:TargetCurrencyCode>EUR</cbc:TargetCurrencyCode>
  <cbc:CalculationRate>0.1300</cbc:CalculationRate>
  <cbc:OperatorCode>multiply</cbc:OperatorCode>
  <cbc:Date>2006-11-20</cbc:Date>
</cac:PaymentExchangeRate>
...
<cac:LegalMonetaryTotal>
  ...
  <cbc:PayableAmount currencyID="DKK">88000.00</cbc:PayableAmount>
</cac:LegalMonetaryTotal>
```