



*European Coordination Group for Notified Bodies in Legal Metrology*

# **Document 4**

2026

## **Documentation: Digital Certificate of Conformity for Product Verification (D-CoC MF)**

Date: 24 02 2026

NoBoMet is the European Coordination Group of Bodies notified by the European Commission for the Directives 2014/31/EU and 2014/32/EU.

The group is established by the European Commission based on the decision at the Working Group Measuring Instruments meeting in 2019.

This document is a document of the NoBoMet Project group "Digital certificates of conformity in Metrology" to provide information to notified bodies.

This document is purely informative and does not itself impose any restrictions or additional technical requirements beyond those contained in relevant EU-Directives.

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## 1. Introduction

**Digital Certificate of Conformity Module F (D-CoC M F)** is a data structure describing the content part of a digital certificate of conformity related to product verification as part of product certification (cf. EN ISO/IEC 17065:2012).

The D-CoC M F comprises a set of elements, attributes, data types and constraints for the representation and exchange of conformity-relevant information generated in different systems and by different actors. This document provides an overview of the data structure part which comprises the certificate content specific for a product verification.

### 1.1 Motivation

Legal metrology deals with all measurements in the economic, health, and police monitoring which are regulated by laws and has, therefore, a high significance for the European industry and customer rights. However, in a more and more digital world, it has to be transformed. The development of digital, machine-readable formats for documents such as certificates of conformity is a corner stone for the digitalisation of legal metrology.

Digital certificates of conformity can be used for a harmonised data exchange between conformity assessment bodies, market surveillance and manufacturers. They also enhance findability and comparability of information. A specific use case is the harmonisation of certificate databases among notified bodies.

### 1.2 Scope

The D-CoC M F data structure focuses on product verification as part of product certification of legally regulated measuring instruments according to Directive 2014/32/EU (MID) and non-automatic weighing instruments according to Directive 2014/31/EU (NAWID). It can also be used outside of legal metrology as well.

**D-CoC document family:** This document is part of the D-CoC document family, which comprises the certificate structure of different certification systems and schemas. The following documents contain separate data structures for the content of the certificate specific to the respective certification schemes in accordance to ISO/IEC 17067:2013. These schemes correspond to the conformity assessment procedures referred to as “conformity assessment modules” set out in Annex II of Directives 2014/31/EU and 2014/32/EU:

- D-CoC is specific to the part of the certificate with **administrative content**;
- D-CoC M B is specific for the conformity assessment of legally regulated measuring instruments based on **type examination**;
- D-CoC QA is specific for the conformity assessment related to the **quality assurance**.

### **1.3 Status**

In May 2021, a project group “Digital certificates of conformity in Metrology” has been established at Notified Bodies in Legal Metrology (NoBoMet) to develop data structures for certificates in legal metrology (NAWID and MID) for the conformity assessment module B (type examination), for the modules D, D1, E, E1, H, H1 (quality assurance surveillance), and for the module F (product verification). The general certification data has been published already as [D-CoC](#) as well as the data structure modules related to quality assurance surveillance. The present documentation describes the representation of information of a product verification.

### **1.4 Funding Note**

Part of the work on the digital certificate of conformity has been performed within the project framework [QI-Digital](#) in the pilot project “Reliable hydrogen filling stations”.

## 2. The Principle of Defining the Data Structure

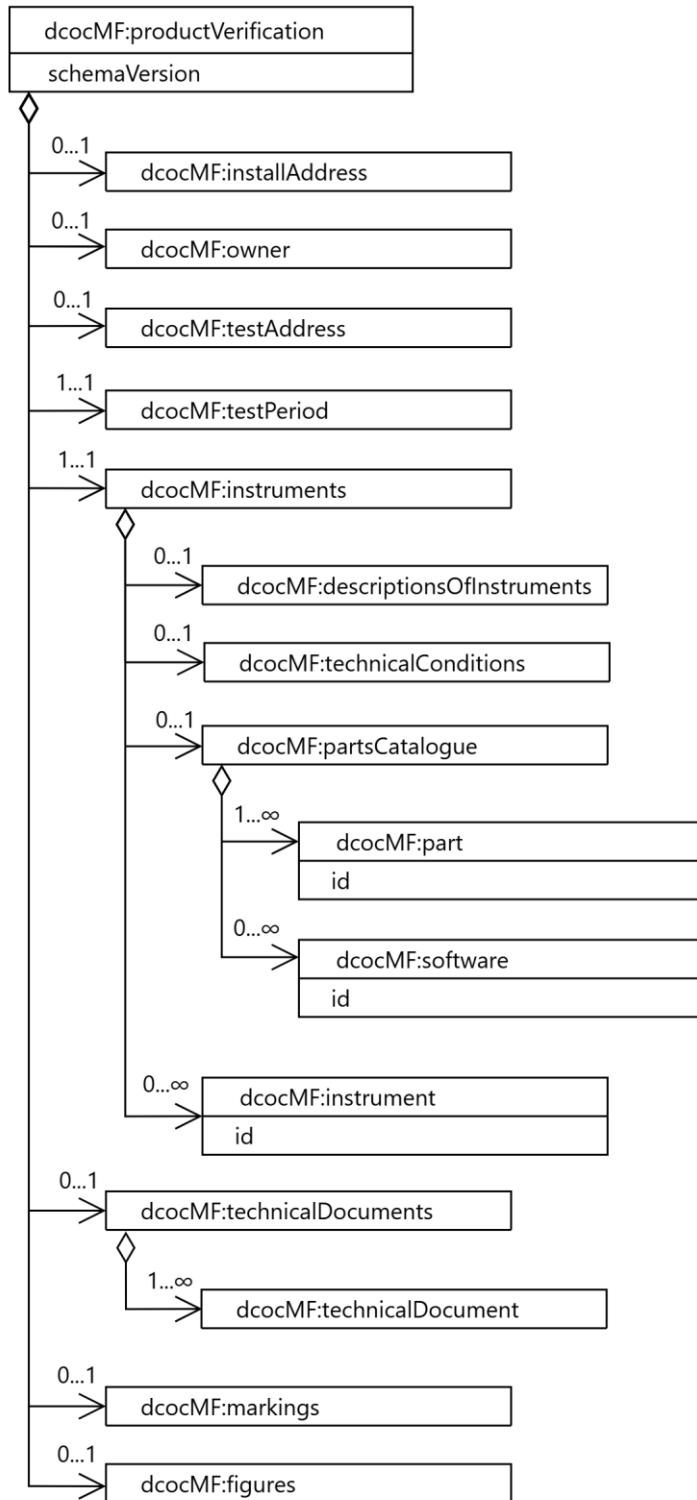
### 2.1 Prefixes

The prefix is **dcocMF**. Additionally, the following prefixes are used for elements imported from the other data structures: **dcoc** from the Digital Certificate of Conformity (D-CoC) and **si** from the Digital System of Units (D-SI).

### 2.2 Modularisation and Data Structure

This document focuses on the content part of certificate of conformity related to product verification and must be used in combination with the administrative content part of the D-CoC.


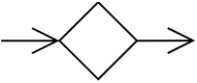
The overview of the elements and their attributes can be represented graphically as follows:



*Elements Module F*

*Figure 1 - General overview about the elements of the certificate content specific to product verification*

The meaning of the relations between the elements used in the graphical representation of the data structure are shown in the following table:

Arrow	Description
	parent-child relation
	choice relation, that allows only one of the elements to be used

The data structure contains a number of so-called **universal elements**. These belong to several superordinate elements and data types and are therefore defined as generally as possible. The universal elements are as following:

- **dcocMF:name**, that occurs with dcocMF:instrument, dcocMF:condition, dcocMF:part, dcocMF:software, dcocMF:marking;
- **dcocMF:description**, that occurs with dcocMF:descriptionsOfInstruments, dcocMF:descriptionsOfInstrument, dcocMF:condition, dcocMF:descriptionsOfPart, dcocMF:software, dcocMF:marking.

## 2.3 Characterisation of the Elements, Attributes, and Data Types

### 2.3.1 Structure of the Specification

The D-CoC M F elements, data types and attributes presented here are documented using the following approach:

MACHINE INTERPRETABLE DESIGNATION: prefix:nameElement or prefix:nameDataType or prefix:nameAttribute;

DEFINITION: The representation of the scope of meaning of the D-CoC M F element, data type, and attribute in natural language;

LABEL	This is a human-readable label that can be displayed to the user, e.g. when visualising the digital certificate.
EXAMPLE	This is an example of element content.
NOTE	A note contains additional information regarding the use of the D-CoC M F element, data type and attribute.
CARDINALITY	Cardinality characterises elements and data types in terms of two properties: (1) the degree of mandatory use and (2) the number of occurrences in the digital certificate. (See here in <a href="#">2.3.2 Cardinality</a> ).
DATA TYPE	In the data structure, two main categories of DATA TYPES are distinguished: simple and complex. Simple data types are expressed by their common names. The following simple data type are used: <b>string</b> as a set of any characters composed, <b>ID</b> as a unique identifier, <b>IDREF</b> as a reference to a unique identifier, <b>date</b> as a Gregorian calendar date, <b>boolean</b> as an indication of whether the relevant content is false or true, and <b>binary</b> as a binary content. In use these can be adopted in most languages e.g. in XML xs:string, xs:ID, xs:IDREF, xs:date, xs:boolean, and xs:hexBinary. Complex data types are internally developed data types that cover the requirements of digital certification, e.g. in the representation of the contact data of relevant persons and organisations, of the text-based certification-relevant content, of the encoded files, and of the language-related information.

ATTRIBUTE	See here in <a href="#">2.3.3 Attribution</a> .
PREDEFINED LIST OF VALUES	This list contains the values available for selection when creating a digital certificate. These values are to be regarded as suggestions based on the current state of the data structure's development and may be changed/expanded in the future if necessary. The fixed list may be realised as an enumeration.

FIGURE: This is a graphic representation of elements, their subelements, and mandatory attributes.

Figures do not claim to be exhaustive.

### 2.3.2 Cardinality

The combination of these properties is expressed in the data structure as follows:

- The cardinality value **1 ... ∞** stands for a mandatory element and data type that can be entered more than once;
- The cardinality value **1 ... 1** stands for a mandatory element and data type that can be entered exactly once in the certificate;
- The cardinality value **0 ... 1** represents an optional element and data type that can be entered at most once;
- The cardinality value **0 ... ∞** represents an optional element and data type that can be entered more than once.

### 2.3.3 Attribution

In the data structure, attributes are distinguished into mandatory attributes and optional attributes.

### 3 Specification of the Data Structure

#### 3.1 dcocMF:productVerification

certificate specific to the conformity assessment based on product verification

LABEL	product verification
CARDINALITY	1 ... 1
MANDATORY ATTRIBUTE	<a href="#">schemaVersion</a>

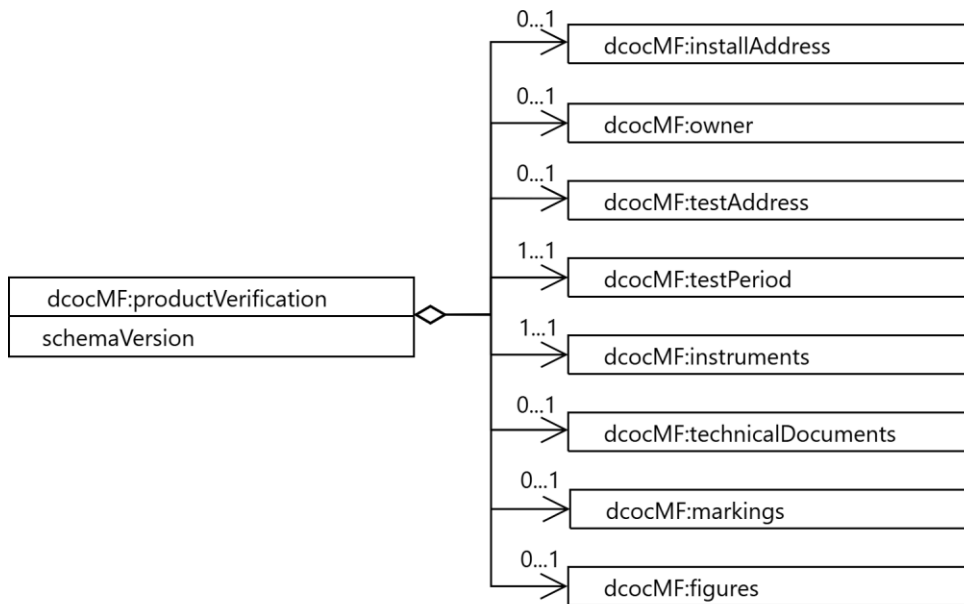


Figure 2 - The subdivision of the element **dcocMF:productVerification** into the individual subelements

##### 3.1.1 dcocMF:installAddress

address referring to the location where the verified instrument is installed

LABEL	installation address
CARDINALITY	0 ... 1
DATA TYPE	<a href="#">contact</a>

##### 3.1.2 dcocMF:owner

any natural or legal person established within the Union who owns the product

[SOURCE: [DIRECTIVE 2010/35/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 June 2010 on transportable pressure equipment and repealing Council Directives 76/767/EEC, 84/525/EEC, 84/526/EEC, 84/527/EEC and 1999/36/EC, \(12\)](#), modified - The expression “transportable pressure equipment” is replaced by “the product”.]

LABEL owner  
CARDINALITY 0 ... 1  
DATA TYPE [contact](#)

### 3.1.3 dcocMF:testAddress

address referring to the location where the verified instrument was tested

LABEL test address  
CARDINALITY 0 ... 1  
DATA TYPE [contact](#)

### 3.1.4 dcocMF:testPeriod

period between the begin and the end of a test

LABEL test period  
CARDINALITY 1 ... 1

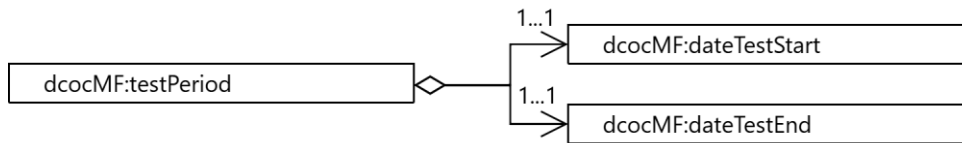


Figure 3 - The subdivision of the element **dcocMF:testPeriod** into the individual subelements

#### 3.1.4.1 dcocMF:dateTestStart

date the verification process began

LABEL test start date  
CARDINALITY 1 ... 1  
DATA TYPE date

#### 3.1.4.2 dcocMF:dateTestEnd

date the verification process was completed

LABEL test end date  
CARDINALITY 1 ... 1  
DATA TYPE date

### 3.1.5 dcocMF:instruments

devices executing specific functions alone or in conjunction with other device(s)

[SOURCE: [International Vocabulary of Metrology, 3.1](#), modified - The definition is modified to enable the definition of more than one instrument. The expression “for making measurement” is replaced by “executing specific functions”. The notes 1 and 2 are not considered.]

LABEL instruments  
 CARDINALITY 1 ... 1  
 OPTIONAL ATTRIBUTE id

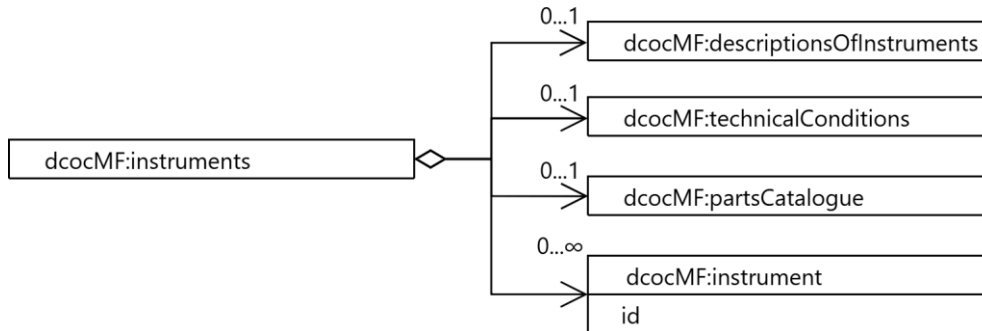


Figure 4 - The subdivision of the element **dcocMF:instruments** into the individual subelements

### 3.1.5.1 dcocMF:descriptionsOfInstruments

textual representation of the instruments

LABEL instruments descriptions  
 CARDINALITY 0 ... 1

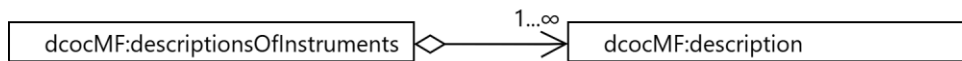


Figure 5 - The subdivision of the element **dcocMF:descriptionsOfInstruments** into the individual subelements

#### 3.1.5.1.1 dcocMF:description

textual representation of the corresponding content element

LABEL description  
 CARDINALITY 1 ... ∞  
 DATA TYPE text

### 3.1.5.2 dcocMF:technicalConditions

(rated) operating conditions of the instrument(s) or part(s)

LABEL technical conditions  
 CARDINALITY 0 ... 1

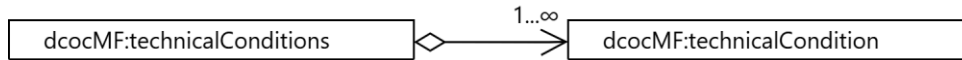


Figure 6 - The subdivision of the element **dcocMF:technicalConditions** into the individual subelements

### 3.1.5.2.1 dcocMF:technicalCondition

(rated) operating condition of the instrument(s) or part(s)

LABEL            technical condition  
 CARDINALITY   1 ... ∞  
 DATA TYPE     condition

### 3.1.5.3 dcocMF:partsCatalogue

list of physical and non-physical parts that may be incorporated in the instrument(s)

LABEL            parts catalogue  
 CARDINALITY   0 ... 1

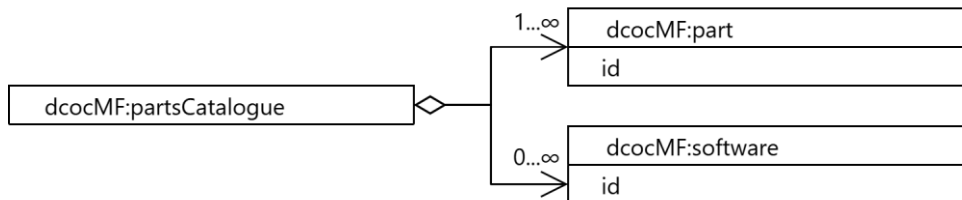


Figure 7 - The subdivision of the element **dcocMF:partsCatalogue** into the individual subelements

### 3.1.5.3.1 dcocMF:part

physical part of the instrument

LABEL            part  
 CARDINALITY     1 ... ∞  
 MANDATORY ATTRIBUTE   id  
 OPTIONAL ATTRIBUTE    refid

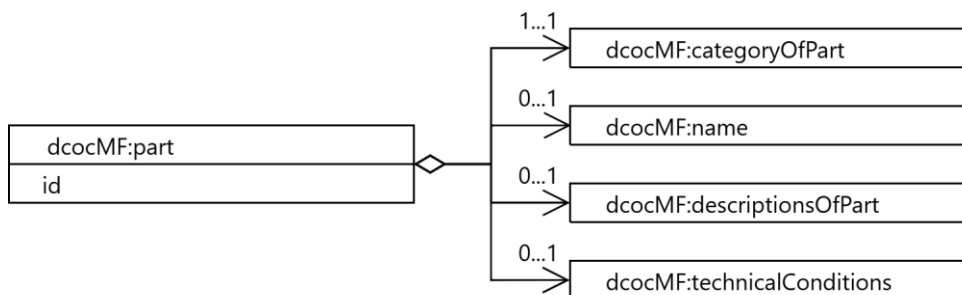


Figure 8 - The subdivision of the element **dcocMF:part** into the individual subelements

### 3.1.5.3.1.1 **dcocMF:categoryOfPart**

category of the part

LABEL            part category  
EXAMPLE 1      *sensor*  
EXAMPLE 2      *indicator*  
CARDINALITY    1 ... 1  
DATA TYPE      [text](#)

### 3.1.5.3.1.2 **dcocMF:name**

designation or proper name of the corresponding content element

LABEL            name  
EXAMPLE         *display AV1*  
CARDINALITY    0 ... 1  
DATA TYPE      [text](#)

### 3.1.5.3.1.3 **dcocMF:descriptionsOfPart**

descriptions of the part

LABEL            part descriptions  
CARDINALITY    0 ... 1

### 3.1.5.3.1.3.1 **dcocMF:description**

textual representation of the corresponding content element

LABEL            description  
CARDINALITY    1 ... ∞  
DATA TYPE      [text](#)

### 3.1.5.3.1.4 **dcocMF:technicalConditions**

(rated) operating conditions of the instrument(s) or part(s)

LABEL            technical conditions  
CARDINALITY    0 ... 1

### 3.1.5.3.1.4.1 **dcocMF:technicalCondition**

(rated) operating condition of the instrument(s) or part(s)

LABEL            technical condition  
CARDINALITY    1 ... ∞  
DATA TYPE      [condition](#)

### 3.1.5.3.2 dcocMF:software

non-physical part of the instrument(s) or part(s) that enables to perform functions

LABEL	software
CARDINALITY	0 ... ∞
DATA TYPE	software
MANDATORY ATTRIBUTE	id

### 3.1.5.4 dcocMF:instrument

device executing specific functions alone or in conjunction with other device(s)

[SOURCE: [International Vocabulary of Metrology, 3.1](#), modified - The expression “for making measurement” is replaced by “executing specific functions”. The notes 1 and 2 are not considered.]

LABEL	instrument
CARDINALITY	1 ... ∞
MANDATORY ATTRIBUTE	id

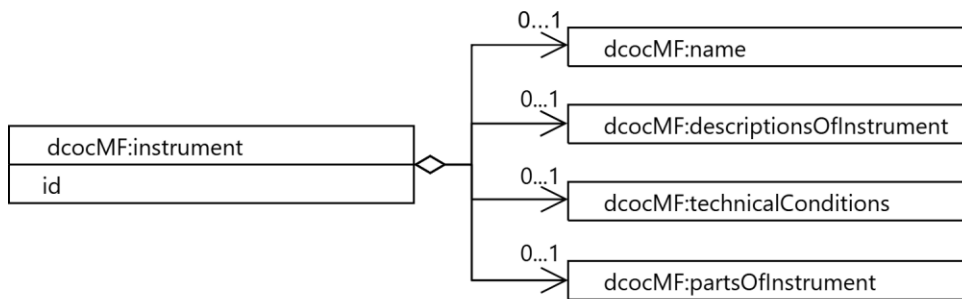


Figure 9 - The subdivision of the element **dcocMF:instrument** into the individual subelements

#### 3.1.5.4.1 dcocMF:name

designation or proper name of the corresponding content element

LABEL	name
EXAMPLE	<i>water meter version a</i>
CARDINALITY	0 ... 1
DATA TYPE	text

#### 3.1.5.4.2 dcocMF:descriptionsOfInstrument

description of the instrument covered by the certificate

LABEL	instrument descriptions
CARDINALITY	0 ... 1

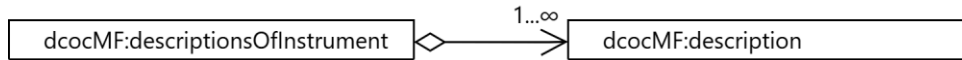


Figure 10 - The subdivision of the element **dcocMF:descriptionsOfInstrument** into the individual subelements

#### 3.1.5.4.2.1 dcocMF:description

textual representation of the corresponding content element

LABEL	description
EXAMPLE	<i>The ultrasonic gas meter is a volume gas meter.</i>
CARDINALITY	1 ... ∞
DATA TYPE	text

#### 3.1.5.4.3 dcocMF:technicalConditions

operating conditions specified for the instrument

LABEL	technical conditions
CARDINALITY	0 ... 1

##### 3.1.5.4.3.1 dcocMF:technicalCondition

operating condition specified for the instrument

LABEL	technical condition
CARDINALITY	1 ... ∞
DATA TYPE	condition

#### 3.1.5.4.4 dcocMF:partsOfInstrument

list of physical and non-physical parts the instrument consists of

LABEL	instrument parts
CARDINALITY	0 ... 1

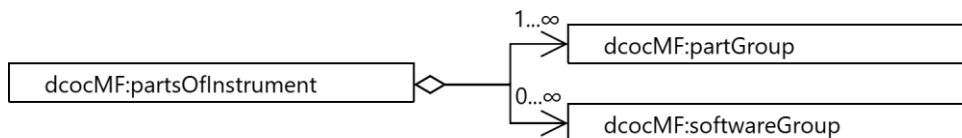


Figure 11 - The subdivision of the element **dcocMF:partsOfInstrument** into the individual subelements

##### 3.1.5.4.4.1 dcocMF:partGroup

set of physical parts of the same type

LABEL part group  
NOTE One part from the group is incorporated in the instrument.  
CARDINALITY 1 ... ∞

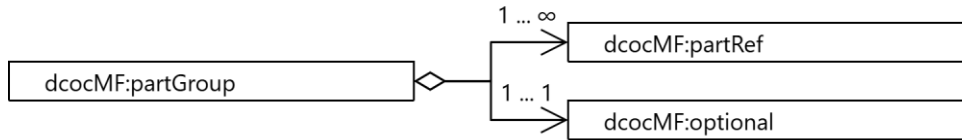


Figure 12 - The subdivision of the element **dcocMF:partGroup** into the individual subelements

#### 3.1.5.4.4.1.1 dcocMF:partRef

reference to the corresponding part

LABEL part reference  
CARDINALITY 1 ... ∞  
DATA TYPE IDREF

#### 3.1.5.4.4.1.2 dcocMF:optional

statement whether the corresponding content element is optional

LABEL optional  
CARDINALITY 1 ... 1  
DATA TYPE boolean

#### 3.1.5.4.4.2 dcocMF:softwareGroup

set of software of the same type

LABEL software group  
NOTE One software from the group is incorporated in the instrument.  
CARDINALITY 0 ... ∞

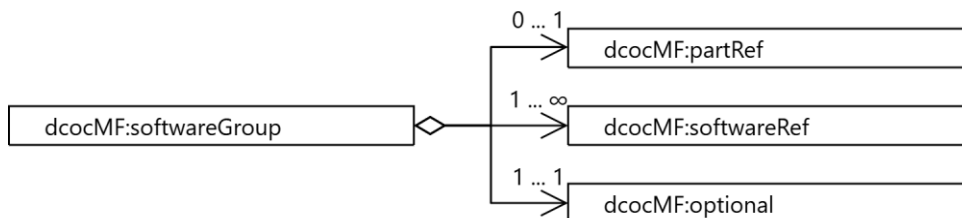


Figure 13 - The subdivision of the element **dcocMF:softwareGroup** into the individual subelements

#### 3.1.5.4.4.2.1 dcocMF:partRef

reference to the corresponding part

LABEL part reference  
CARDINALITY 0 ... 1  
DATA TYPE IDREF

#### 3.1.5.4.4.2.2 dcocMF:softwareRef

reference to the corresponding software

LABEL software reference  
CARDINALITY 1 ... ∞  
DATA TYPE IDREF

#### 3.1.5.4.4.2.3 dcocMF:optional

statement whether the corresponding content element is optional

LABEL optional  
CARDINALITY 1 ... 1  
DATA TYPE boolean

### 3.1.6 dcocMF:technicalDocuments

technical documents with which the instrument must comply

LABEL technical documents  
CARDINALITY 0 ... 1

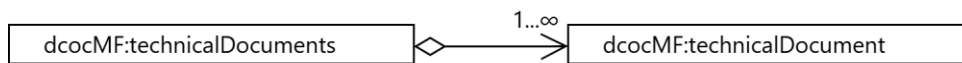


Figure 14 - The subdivision of the element **dcocMF:technicalDocuments** into the individual subelements

#### 3.1.6.1 dcocMF:technicalDocument

technical document with which the instrument must comply

LABEL technical document  
CARDINALITY 1 ... ∞  
OPTIONAL ATTRIBUTE [id](#)

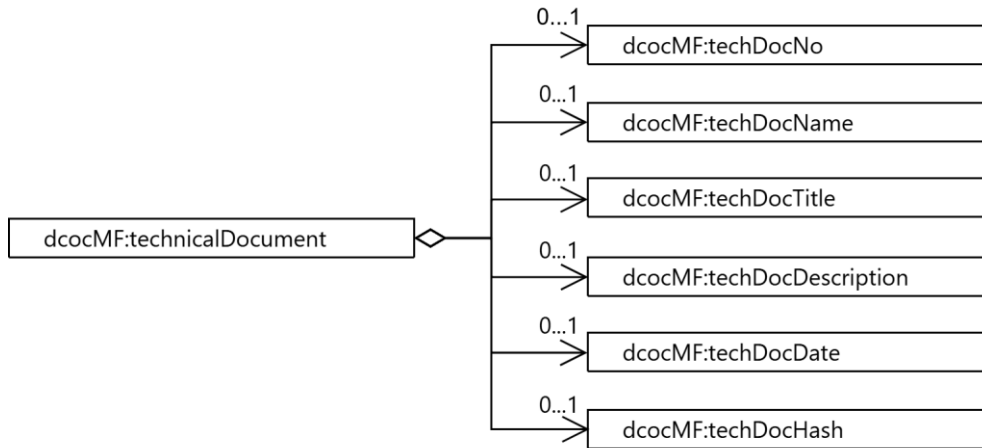


Figure 15 - The subdivision of the element **dcocMF:technicalDocument** into the individual subelements

### 3.1.6.1.1 dcocMF:techDocNo

identifier of the technical document

LABEL document identifier  
CARDINALITY 0 ... 1  
DATA TYPE string

### 3.1.6.1.2 dcocMF:techDocName

designation of the technical document

LABEL document designation  
EXAMPLE *filename.pdf*  
CARDINALITY 0 ... 1  
DATA TYPE string

### 3.1.6.1.3 dcocMF:techDocTitle

title of the technical document

LABEL document title  
EXAMPLE 1 *Instruction manual*  
EXAMPLE 2 *Control panel for hazardous areas*  
CARDINALITY 0 ... 1  
DATA TYPE [text](#)

### 3.1.6.1.4 dcocMF:techDocDescription

description of the technical document

LABEL document description

EXAMPLE *The technical documents relating to this Certificate are deposited in the respective Set of Certification Documents at PTB. The Table of Contents of the Set of Certification Documents was sent to the owner of the Certificate.*

CARDINALITY 0 ... 1

DATA TYPE [text](#)

### 3.1.6.1.5 dcocMF:techDocDate

issuing date of the technical document

LABEL issuing date

CARDINALITY 0 ... 1

DATA TYPE date

### 3.1.6.1.6 dcocMF:techDocHash

result generated by a hash function in order to verify the integrity and authenticity of the document

LABEL hash value

CARDINALITY 0 ... 1

DATA TYPE string

### 3.1.7 dcocMF:markings

markings on the instruments

LABEL markings

CARDINALITY 0 ... 1

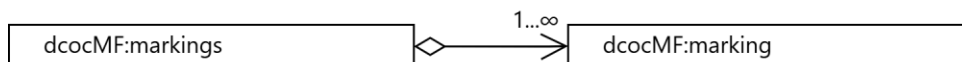


Figure 16 - The subdivision of the element **dcocMF:markings** into the individual subelements

#### 3.1.7.1 dcocMF:marking

marking on the instruments

LABEL marking

CARDINALITY 1 ... ∞

OPTIONAL ATTRIBUTE 1 [id](#)

OPTIONAL ATTRIBUTE 2 [refId](#)

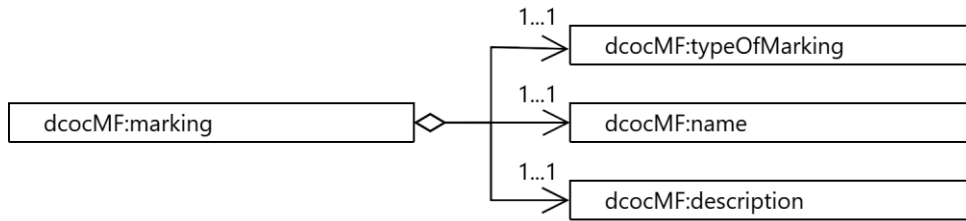


Figure 17 - The subdivision of the element **dcocMF:marking** into the individual subelements

### 3.1.7.1.1 dcocMF:typeOfMarking

type of marking

LABEL	type of marking
CARDINALITY	1 ... 1
DATA TYPE	string
PREDEFINED LIST OF VALUES	inscription, seal

### 3.1.7.1.2 dcocMF:name

designation or proper name of the corresponding content element

LABEL	name
CARDINALITY	1 ... 1
DATA TYPE	text

### 3.1.7.1.3 dcocMF:description

textual representation of the corresponding content element

LABEL	description
CARDINALITY	1 ... 1
DATA TYPE	text

### 3.1.8 dcocMF:figures

figures attached to the certificate

LABEL	figures
CARDINALITY	0 ... 1
OPTIONAL ATTRIBUTE	id



Figure 18 - The subdivision of the element **dcocMF:figures** into the individual subelements

### 3.1.8.1 dcocMF:figure

figure attached to the certificate

LABEL figure  
CARDINALITY 1 ... ∞  
DATA TYPE [byteData](#)

## 3.2 Data Types

### 3.2.1 dcoc:text

indication of any content in text form including used language

NOTE The element name and cardinality are given at the point where it is used.  
OPTIONAL ATTRIBUTE [id](#)

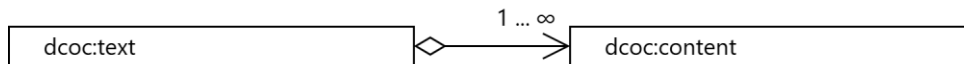


Figure 19 - The subdivision of the data type **dcoc:text** into the individual subelements

#### 3.2.1.1. dcoc:content

text content based on language indication

LABEL content  
CARDINALITY 1 ... ∞  
DATA TYPE string  
OPTIONAL ATTRIBUTE 1 [id](#)  
OPTIONAL ATTRIBUTE 2 [lang](#)

### 3.2.2 dcoc:contact

contact data on a person or organisation

NOTE The element name and cardinality are determined at the place of use of the data structure.

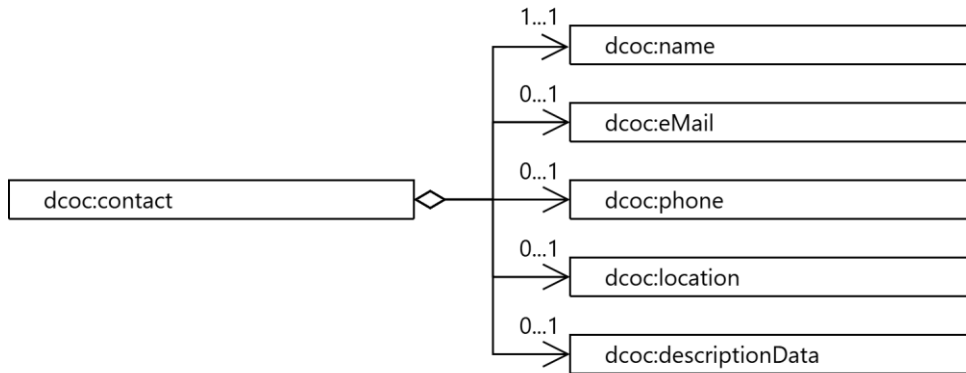


Figure 20 - The subdivision of the data type **dcoc:contact** into subelements

### 3.2.2.1 dcoc:name

name of the contact person or organization

LABEL name  
EXAMPLE 1 *P. Sherman Meter GmbH*  
EXAMPLE 2 *ਪੀ ਸ਼ਰਮਨ ਮੀਟਰ ਲਿਮਿਟੇਡ*  
EXAMPLE 3 *Peter Hase*  
CARDINALITY 1 ... 1  
DATA TYPE [text](#)

### 3.2.2.2 dcoc:eMail

email address of the contact person or organization

LABEL email  
CARDINALITY 0 ... 1  
DATA TYPE string

### 3.2.2.3 dcoc:phone

phone number of the contact person or organization

LABEL phone number  
CARDINALITY 0 ... 1  
DATA TYPE string

### 3.2.2.4 dcoc:location

location data of the contact person or organization

LABEL location  
CARDINALITY 0 ... 1

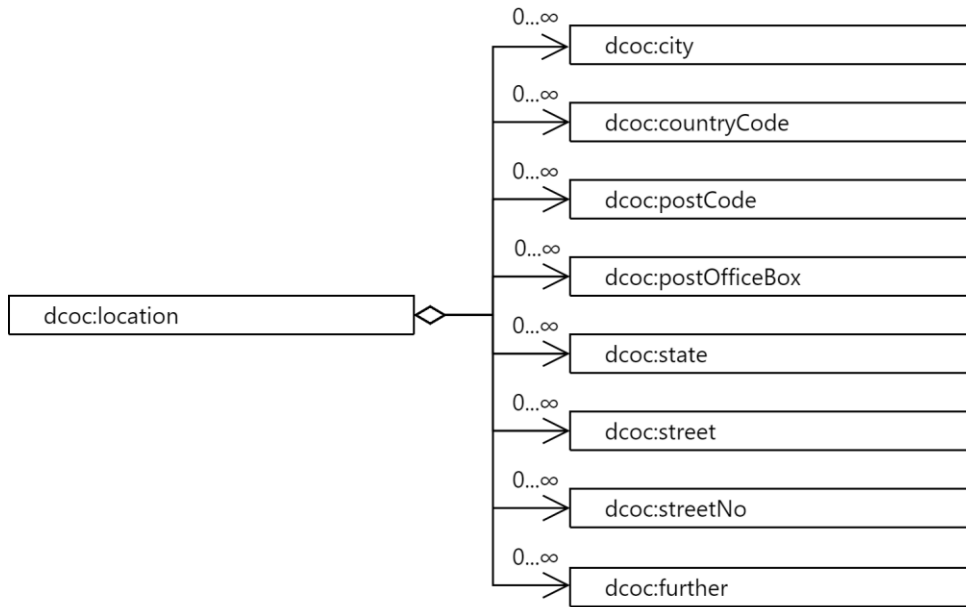


Figure 21 - The subdivision of the data type **dcoc:location** into subelements

#### 3.2.2.4.1 dcoc:city

city name

LABEL	city
EXAMPLE	<i>Sydney</i>
CARDINALITY	0 ... ∞
DATA TYPE	string

#### 3.2.2.4.2 dcoc:countryCode

country code

LABEL	country
EXAMPLE	<i>AUS</i>
CARDINALITY	0 ... ∞
DATA TYPE	string
RESTRICTION ON VALUE	The entry is made using the country codes according to ISO 3166.

#### 3.2.2.4.3 dcoc:postCode

post code

LABEL	postcode
EXAMPLE	<i>2124</i>
CARDINALITY	0 ... ∞
DATA TYPE	string

#### **3.2.2.4.4 dcoc:postOfficeBox**

post office box number of the contact person or organisation

LABEL            P.O. box  
EXAMPLE        *P.O. Box 1234*  
CARDINALITY   0 ... ∞  
DATA TYPE      string

#### **3.2.2.4.5 dcoc:state**

name of the federal state, region, or substate

LABEL            state  
EXAMPLE        *Queensland*  
CARDINALITY   0 ... ∞  
DATA TYPE      string

#### **3.2.2.4.6 dcoc:street**

street name of the contact person or organisation

LABEL            street  
EXAMPLE        *Wallaby Way*  
CARDINALITY   0 ... ∞  
DATA TYPE      string

#### **3.2.2.4.7 dcoc:streetNo**

street number of the contact person or organisation

LABEL            street number  
EXAMPLE        *42a*  
CARDINALITY   0 ... ∞  
DATA TYPE      string

#### **3.2.2.4.8 dcoc:further**

additional information on the location

LABEL            further  
EXAMPLE        *o.V.i.A*  
CARDINALITY   0 ... ∞  
DATA TYPE      string

#### **3.2.2.5 dcoc:descriptionData**

additional files on the contact person or organisation

LABEL additional file  
EXAMPLE *Logo*  
CARDINALITY 0 ... 1  
DATA TYPE [byteData](#)

### 3.2.3 dcoc:byteData

encoded file

NOTE The element name and cardinality are given at the point where it is used.  
OPTIONAL ATTRIBUTE [id](#)

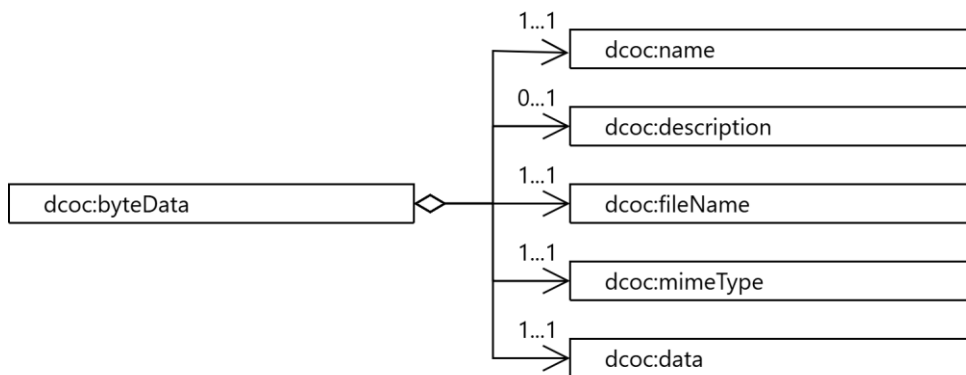


Figure 22 - The subdivision of the data type **dcoc:byteData** into the individual subelements

#### 3.2.3.1 dcoc:name

designation or proper name of the corresponding content element

LABEL name  
EXAMPLE *seal plan*  
CARDINALITY 1 ... 1  
DATA TYPE [text](#)

#### 3.2.3.2 dcoc:description

textual representation of the corresponding content element

LABEL description  
CARDINALITY 0 ... 1  
DATA TYPE [text](#)

#### 3.2.3.3 dcoc:fileName

designation of the encoded file

LABEL file name  
EXAMPLE *picture.jpg*  
CARDINALITY 1 ... 1  
DATA TYPE string

### 3.2.3.4 dcoc:mimeType

underlying file type

LABEL mime type  
NOTE Mime type is according to specification *Multipurpose Internet Mail Extensions*.  
EXAMPLE *base64*  
CARDINALITY 1 ... 1  
DATA TYPE string

### 3.2.3.5 dcoc:data

encoded data

LABEL file  
CARDINALITY 1 ... 1  
DATA TYPE binary

### 3.2.4 dcocMF:condition

technical condition of the instrument(s) and part(s) covered by the certificate

LABEL condition  
OPTIONAL ATTRIBUTE 1 [id](#)  
OPTIONAL ATTRIBUTE 2 [refId](#)

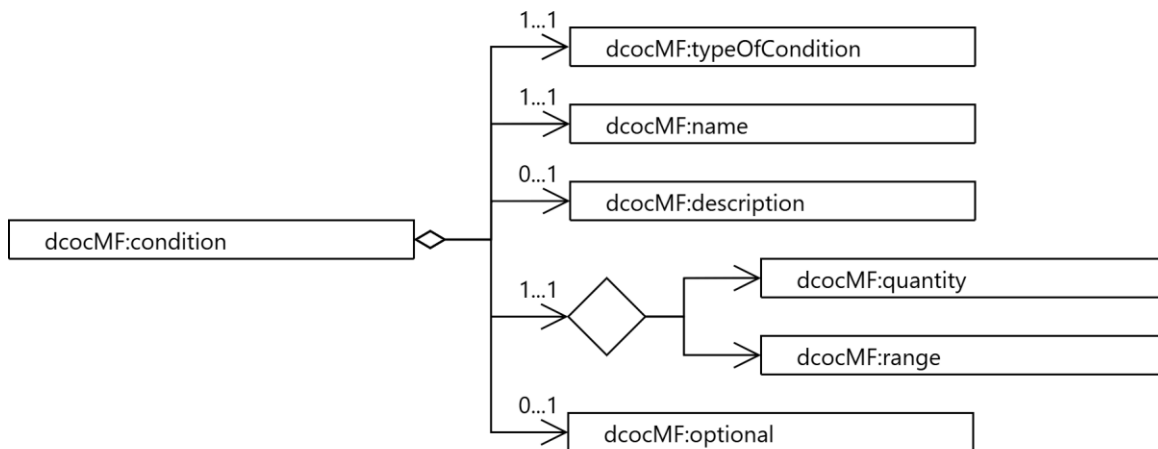


Figure 23 - The subdivision of the data type **dcoc:condition** into the individual subelements

### 3.2.4.1 dcocMF:typeOfCondition

type of the condition specified for the instrument

LABEL	condition type
CARDINALITY	1 ... 1
DATA TYPE	string
PREDEFINED LIST OF VALUES	measurand, measurement range, accuracy class, environmental conditions, influence quantities, climatic, mechanical, electromagnetic, other

### 3.2.4.2 dcocMF:name

designation or proper name of the corresponding content element

LABEL	name
EXAMPLE	<i>accuracy class</i>
CARDINALITY	1 ... 1
DATA TYPE	text

### 3.2.4.3 dcocMF:description

textual representation of the corresponding content element

LABEL	description
EXAMPLE	<i>Only applicable for multi interval weighing instruments.</i>
CARDINALITY	0 ... 1
DATA TYPE	text

### 3.2.4.4 dcocMF:quantity

property of a phenomenon, body, or substance, where the property has a magnitude that can be expressed as a number and a reference

[SOURCE: [International Vocabulary of Metrology \(VIM\), 1.1](#), modified - The notes 1 - 6 are not considered.]

LABEL	quantity
CARDINALITY	1 ... 1
DATA TYPE	quantity

### 3.2.4.5 dcocMF:range

set of values between the values of the minimum quantity and maximum quantity

LABEL	range
CARDINALITY	1 ... 1

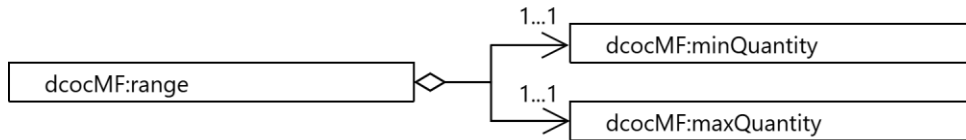


Figure 24 - The subdivision of the data type **dcocMF:range** into the individual subelements

### 3.2.4.5.1 dcocMF:minQuantity

quantity represented by its lowest value

LABEL            minimum quantity

CARDINALITY    1 ... 1

DATA TYPE      [quantity](#)

### 3.2.4.5.2 dcocMF:maxQuantity

quantity represented by its highest value

LABEL            maximum quantity

CARDINALITY    1 ... 1

DATA TYPE      [quantity](#)

### 3.2.4.6 dcocMF:optional

statement whether the corresponding context element is optional

LABEL            optional

CARDINALITY    0 ... 1

DATA TYPE      boolean

### 3.2.5 dcocMF:quantity

NOTE            The element name and cardinality are given at the point where it is used.

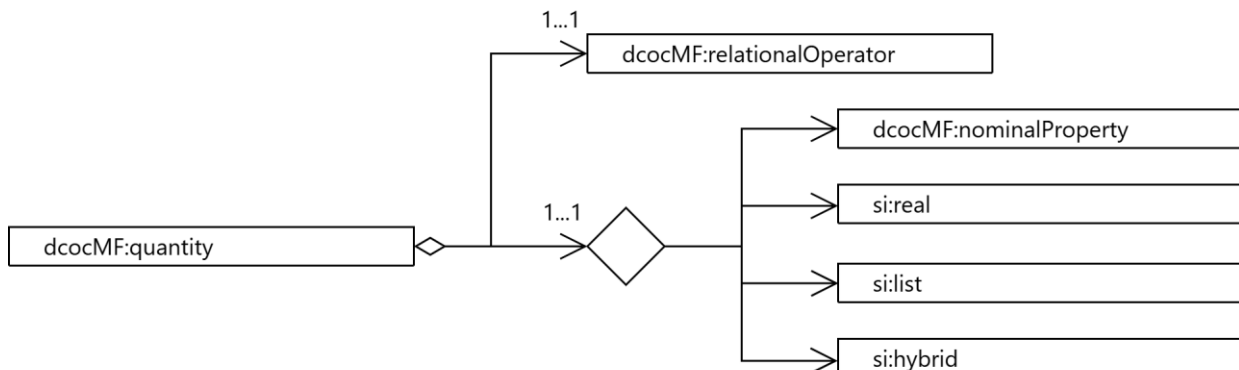


Figure 25 - The subdivision of the data type **dcocMF:quantity** into the individual subelements

### 3.2.5.1 dcocMF:relationalOperator

operator represented by the comparison characters

LABEL	relational operator
CARDINALITY	1 ... 1
PREDEFINED LIST OF VALUES	equalTo, greaterThan, lessThan, greaterThanEqualTo, lessThanEqualTo
DATA TYPE	string

### 3.2.5.2 dcocMF:nominalProperty

property of a phenomenon, body, or substance, where the property has no magnitude

[SOURCE: [International Vocabulary of Metrology \(VIM\), 1.30](#)]

LABEL	nominal property
EXAMPLE 1	<i>M1</i>
EXAMPLE 2	<i>Y (a)</i>
EXAMPLE 3	III
NOTE 1	The <b>nominal property</b> is one of four elements besides the <b>real</b> , <b>list</b> , and <b>hybrid</b> that is assigned by a <a href="#">choice relation</a> and may therefore only be used if the other three elements are not applicable.
NOTE 2	In the context of this specification, the <b>nominal property</b> can be used to represent, in particular, an accuracy class of the instrument covered by the D-CoC. While in the analogue world the accuracy class is usually represented by an oval around a Roman numeral, in this specification a string is used instead in order to optimise machine readability, see here the EXAMPLE 3.
CARDINALITY	1 ... 1
DATA TYPE	string

### 3.2.5.3 si:real

[SOURCE: [D-SI - Digital System of Units.](#)]

NOTE	The <b>real</b> is one of four elements besides the <b>nominal property</b> , <b>list</b> , and <b>hybrid</b> that is assigned by a <a href="#">choice relation</a> and may therefore only be used if the other three elements are not applicable.
CARDINALITY	1 ... 1

### 3.2.5.4 si:list

[SOURCE: [D-SI - Digital System of Units.](#)]

NOTE	The <b>list</b> is one of four elements besides the <b>nominal property</b> , <b>real</b> , and <b>hybrid</b> that is assigned by a <a href="#">choice relation</a> and may therefore only be used if the other three elements are not applicable.
CARDINALITY	1 ... 1

### 3.2.5.5 si:hybrid

[SOURCE: D-SI - Digital System of Units.]

NOTE The **hybrid** is one of four elements besides the **nominal property**, **real**, and **list** that is assigned by a **choice relation** and may therefore only be used if the other three elements are not applicable.

CARDINALITY 1 ... 1

### 3.2.6 dcocMF:software

non-physical part of the instrument(s) or part(s) that enable to perform functions

MANDATORY ATTRIBUTE **id**

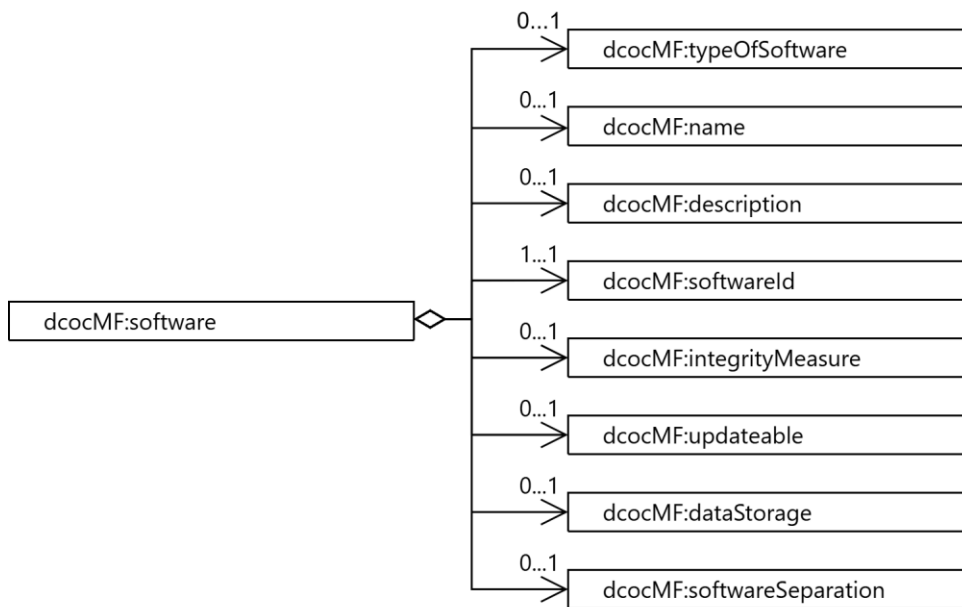


Figure 26 - The subdivision of the data type **dcocMF:software** into the individual subelements

#### 3.2.6.1 dcocMF:typeOfSoftware

type of software

LABEL type of software

CARDINALITY 0 ... 1

DATA TYPE string

#### 3.2.6.2 dcocMF:name

designation or proper name of the corresponding content element

LABEL name  
CARDINALITY 0 ... 1  
DATA TYPE [text](#)

### 3.2.6.3 dcocMF:description

textual representation of the corresponding content element

LABEL description  
CARDINALITY 0 ... 1  
DATA TYPE [text](#)

### 3.2.6.4 dcocMF:softwareId

sequence of readable characters (e.g., version number, checksum) that represents the software or software module under consideration

[SOURCE: WELMEC Software Guide 7.2, modified - The undefined article before “sequence” and the note have not been considered.]

LABEL software identification  
NOTE Software identification is according to the requirements P2/U2 of WELMEC Software Guide 7.2.  
EXAMPLE 1 *ultrasonicDSP*  
EXAMPLE 2 *Ode3b95f*  
CARDINALITY 1 ... 1  
DATA TYPE string

### 3.2.6.5 dcocMF:integrityMeasure

cryptographic means that identifies the change of the legally relevant software, measurement data and parameters within the instrument(s) and part(s)

LABEL integrity measure  
NOTE Integrity measure is according to requirements P6/U6 of WELMEC Software Guide 7.2.  
EXAMPLE *0x7E33DA3A*  
CARDINALITY 0 ... 1  
DATA TYPE string

### 3.2.6.6 dcocMF:updateable

statement whether the software can be actualised

LABEL updateable  
CARDINALITY 0 ... 1  
DATA TYPE boolean

### 3.2.6.7 dcocMF:dcocMB:dataStorage

statement whether the software enables keeping the measurement results to be available after completion of the measurement for later legally relevant purposes

LABEL data storage  
CARDINALITY 0 ... 1  
DATA TYPE boolean

### 3.2.6.8 dcocMF:softwareSeparation

statement whether there is a separation of the software into legally relevant software modules and not legally relevant software modules

LABEL software separation  
CARDINALITY 0 ... 1  
DATA TYPE boolean

## 3.3 Attributes

### 3.3.1 dcoc:schemaVersion

Version of the schema

LABEL schema version  
EXAMPLE *0.4.0*  
DATA TYPE string  
RESTRICTION ON VALUE The value is expressed as digit.digit.digit.

### 3.3.2 dcoc:id

identification number

LABEL ID  
EXAMPLE *software1*  
DATA TYPE ID

### 3.3.3 dcocMF:refId

reference to the identification number

LABEL           reference  
EXAMPLE        *software1*  
DATA TYPE      IDREFS

### 3.3.4 dcoc:lang

language used

LABEL                            language  
DATA TYPE                       string  
RESTRICTION ON                 code according to ISO 639  
VALUES

## 4. References

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## 5. Version control

Issue Year	Significant changes
2026	Document first issued