



**eCl@ss-BMEcat-Guideline
proposal for embedding eCl@ss into BMEcat 2005**

Version <1.1>

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Revision History

Date	Version	Description	Author
10.07.2013	1.0	Initial Version based on the BMEcat 1.2 and 2005.1 documentation	FS (Sc)
14.03.2014	1.1	Changes in context of multilanguage content (chapter 3.4.5) and units (chapter 3.5)	FS (Sc)

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1 Introduction

1.1 Purpose

In this document the embedding and usage of eCI@ss content in the context of BMEcat catalogs is described as a basis for discussion with BME and as a guideline to implementers.

This document focusses on BMEcat version 2005. This version is already used in many industry branches and is also very relevant beside the other BMEcat versions 1.2 and 2005.1.

1.2 Scope

In scope are:

- A guideline for the embedding of eCI@ss in general into BMEcat Version 2005, not limited but with particular regard to eCI@ss 7 and 8
- Transaction type is T_NEW_CATALOG

Out of scope are:

- BMEcat 1.2, BMEcat 2005.1 (see separate documents)
- Transactions T_UPDATE_PRODUCTS and T_UPDATE_PRICES are not described here
- UDX (user defined extensions)
UDX fields are not used like in other BMEcat based format specification, because the BMEcat format should be used nearby the standard
- Other feature group systems, be they external or transported in the catalog

1.3 Definitions, Acronyms, and Abbreviations

Definitions, acronyms, and abbreviations are described in the eCI@ss Wiki (wiki.eclass.eu).

1.4 Basic assumptions

The following assumptions are made in this document:

- The eCI@ss dictionary is available separately from the BMEcat catalog, i.e. eCI@ss is not to be transported inside the catalog
- There is a process in place that guarantees that **catalog requirements** can be expressed in a machine tractable way
- Concept identifiers are used to identify elements from the dictionary
- The dictionary applies dictionary change management

1.5 References

eCI@ss Release

More information on eCI@ss can be found at www.eclass.de

BMEcat

More information on BMEcat can be found at wiki.eclass.eu/wiki/BMEcat and www.bmecat.org

ISO 29002-5:

Industrial automation systems and integration -- Exchange of characteristic data -- Part 5: Identification scheme

2 Prerequisites

2.1 eCI@ss

2.1.1 Identification

2.1.1.1 Concept identifier

eCI@ss version 7.0 and higher (ISO 29002-5)

For referencing eCI@ss classes and properties, etc. the elements have to be identified. As catalogues are exchanged worldwide and eCI@ss is available in different languages the identification of the elements (classes, properties, etc.) is NOT done via language dependent names. For identifying eCI@ss elements (class, property) the identification schema according to ISO 29005-5 is used.

The picture below shows the detailed structure of the concept identifier according to ISO 29005-5.

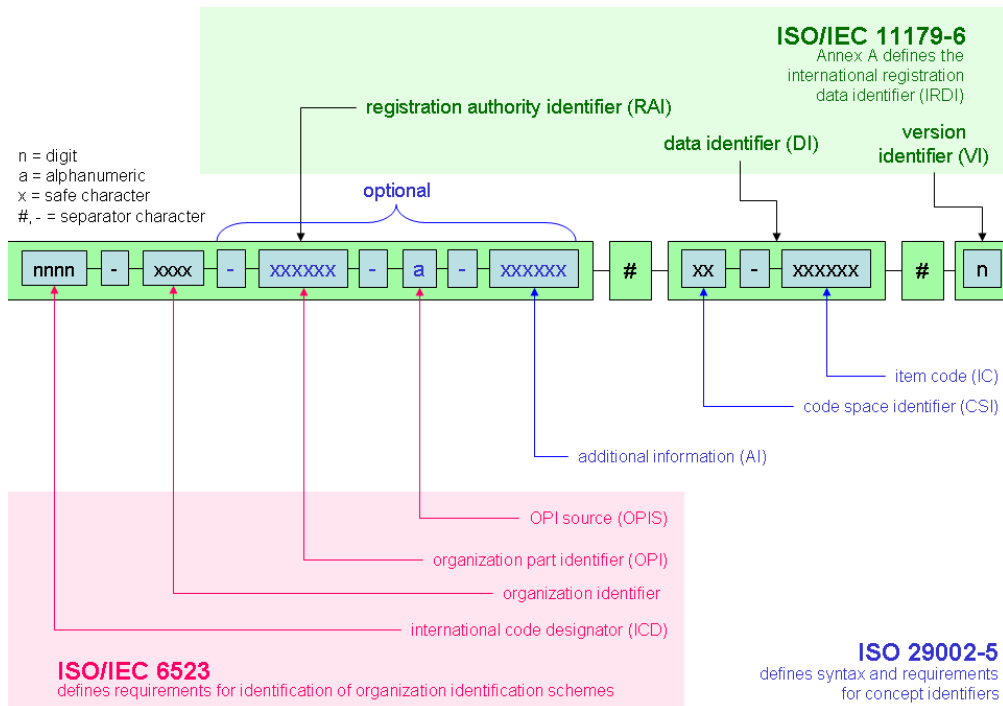


Figure 1: Identification schema according to ISO 29005-5

The Code Space Identifier (CSI) defines the category of the item. The table below shows an excerpt of CSIs used for eCI@ss elements.

Code Space Identifier (CSI)	Category of administrated item
01	class
02	property
05	unit of measurement
07	property value

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Table 1: Excerpt of Code Space Identifiers (CSI) according to ISO 29005-5

The table below shows an example of an identification code for an eCI@ss class. It becomes clear that the length of this IRDI is well below the 60 character limit for the length of an identifier in the current BMEcat format. So it can be assumed that it's save to write an IRDI as an eCI@ss identifier into the catalogue.

0173-1#01-AAA123#001	
Code:	description
0173	ICD code for eCI@ss
1	eCI@ss Office
01	class
AAA123	identifier of class
001	version of class

Table 2: Identification code for an eCI@ss class according to ISO 29005-5

Older eCI@ss versions (up to version 6.2)

Older eCI@ss versions do not deliver IRDI values. In this case the regular identifiers without version information have to be used. Example: ABC123

The following document based on a description for the newer eCI@ss versions. Please adopt the descriptions to this special case of data delivery.

2.1.1.2 eCI@ss Coded Name

The hierarchy of the classification classes is represented with the help of the **coded name**, i.e. the class code. The coded name consists of an 8-digit integer number, two digits for each hierarchical level. The number of trailing zeros in the end indicates the level of hierarchy, e.g. 16000000 (Segment "Food, beverage, tobacco"), 16040000 (Main group "Fruit"), 16040300 (Group "Berry fruit"), 16040301 (Commodity class "Blackberry"). The fourth level, the commodity class or product group is then further described with the help of properties and property values. Properties and values form the basis for the product description.

eCI@ss class coded name has to be written as follows:

[Segment][Main Group][Group][Commodity Class]

Example: 27010110

Note 1: The coded name is an identification of the classification and is complementary to the concept identifier (see 2.1.1.1).

Note 2: Dashes are not allowed.

2.1.2 Two representations

eCI@ss ADVANCED cannot be used with BMEcat 2005. Please use BMEcat 2005.1 (see above).

2.1.3 Deliveries of the eCI@ss dictionary

Starting with eCI@ss 7.0, the eCI@ss dictionary is delivered in three formats, one CSV based and two XML based formats. In context of BMEcat 2005 only two formats are relevant.

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2.1.3.1 eCI@ss Basic CSV

The eCI@ss Basic CSV format contains only the basic representation and does not take into consideration of the default aspect. Therefore catalogs based on this delivery can be created in the BMEcat 2005 format.

2.1.3.2 eCI@ss Basic XML

The eCI@ss Basic XML format contains only the basic representation and does not take into consideration of the default aspect. Therefore catalogs based on this delivery can be created in the BMEcat 2005 format.

2.2 BMEcat

2.2.1 Transaction type

BMEcat defines three transaction types:

- T_NEW_CATALOG
- T_UPDATE_PRODUCTS
- T_UPDATE_PRICES

This document focuses on T_NEW_CATALOG.

2.2.2 Multiple classification systems

In a T_NEW_CATALOG an ARTICLE can have many ARTICLE_FEATURES. Each of these elements can be used to contain a reference to a different classification system.

2.2.3 Translatable vs. constant coded strings

<FVALUE> is a multilingual string. See chapter 3.4.5 for more information.

3 eCI@ss to BMEcat mapping

3.1 File naming scheme

File names should contain:

- Name of the catalog provider
- Name of the catalog recipient
- Language
- Time stamp

File names should not exceed 40 characters. Spaces should not be used in the file name (please use sublines instead).

3.2 Namespace

It is expected that the following start tag / name space is used for BMEcat 2005:

```
<?xml version="1.0" encoding="UTF-8"?>
<BMECAT xmlns="http://www.bmecat.org/bmecat/2005fd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.eClass.eu/static/eClassXML/2.0/bmecat
bmecat_2005.xsd" version="2005">
```


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Note: Alternatively the corresponding DTD can be used

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE BMECAT SYSTEM
"http://www.eClass.eu/static/eClassXML/2.0/bmecat/bmecat_2005_tnc.dtd">
<BMECAT xmlns="http://www.bmecat.org/bmecat/2005fd"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" version="2005">
```

3.3 REFERENCE_FEATURE_SYSTEM_NAME

The BMEcat specification gives a rule for formatting the content of <REFERENCE_FEATURE_SYSTEM_NAME>.

The name of the feature system (in all capital letters) separated by a dash (minus sign) from the major and minor version that is given, separated by one dot. Moreover, the BMEcat spec has a list of known reference feature system names where the naming schema is explicitly mentioned.

Example: eCI@ss 8 has to be written ECLASS-8.0

3.4 Properties and values

3.4.1 Properties

For the transfer of eCI@ss features FT_IDREF is used.

Example

```
<!-- width -->
<FT_IDREF>0173-1#05-AAA480#002</FT_IDREF>
<FDESCR>width definition</FDESCR>
```

Note: The name of the property can be included optional as a XML comment. FDESCR can be used (optional) to transfer a definition of the property.

3.4.2 ID values

An existing value will be transferred by using the IRDI (older version: identifier, see chapter 2.1.1.1). The readable name will be transferred as a comment in the XML file.

Example 1: Transferring one standard ID-based value

```
<!-- gray -->
<VALUE_IDREF>0173-1#07-AAA875#003</VALUE_IDREF>
<FVALUE_DETAILS>dark gray</FVALUE_DETAILS>
```

Example 2: Transferring more than one standard values (multivalue)

```
<!-- gray -->
<VALUE_IDREF>0173-1#07-AAA875#003</VALUE_IDREF>
<!-- green -->
<VALUE_IDREF>0173-1#07-WDA058#003</VALUE_IDREF>
```

Note: BMEcat 2005 does support <VALUE_IDREF> for ID bases values, so <FVALUE> has not to be used in this case. <FVALUE_DETAILS> will be used in the standard way to describe the value more deeply. This element can be used only once in context of a feature so it is a recommendation to use it only with single value features.

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3.4.3 Readable free text values

Readable free text values will be transferred in the following way. Here <FVALUE> has to be used.

Example 1: Transferring one free text value

```
<FVALUE>green</FVALUE>
```

Example 2: Transferring more than one free text values

```
<!-- Value 1 -->
<FVALUE>green</FVALUE>
<!-- Value 2 -->
<FVALUE>white</FVALUE>
```

Note: The different values are separated by a XML comment.

3.4.4 Combination of ID values and free text values

Combinations of these types of values are transferred in the following way.

Example: Transferring multiple ID values and free text values

```
<!-- gray -->
<VALUE_IDREF>0173-1#07-AAA873#002</VALUE_IDREF>
<!-- green -->
<VALUE_IDREF>0173-1#07-AAAxxx#002</VALUE_IDREF>
<!-- Value 1 -->
<FVALUE>rose</FVALUE>
<!-- Value 2 -->
<FVALUE>blue</FVALUE>
```

Note: Multiple values are transferred one after another. For every value a comment is given to make the file more readable. An encapsulation is not possible.

3.4.5 Multilanguage

BMEcat 2005 supports in contrast to version 1.2 the transport of multilanguage content in one file. So it is not necessary to create a separate BMEcat file for each language.

All languages have to be named in the BMEcat header <CATALOG><LANGUAGE>.

Example 1: Language definition in BMEcat header

```
<CATALOG>
  <LANGUAGE default="true">eng</LANGUAGE>
  <LANGUAGE>deu</LANGUAGE>
  <LANGUAGE>fra</LANGUAGE>
  <LANGUAGE>kor</LANGUAGE>
```

The default language can be set for one language. The concept of the default language is used in the following context:

- The default language is used for missing translations. The perspective is the content-generating system; this system has to use the default language for items that are not translated.

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- The default language is also used for the XML comments.

Note: The perspective "content reading system" cannot be used because of the possible transfer of multiple values. In this case not all free text values in a language are transferred and it is not possible to find the corresponding default language entry.

The transfer of multilanguage content is from the view of eCI@ss only relevant for free-text values. IRDI based values are transferred by ID and these items are not relevant in context of multiple languages. This is also related to the XML comments.

Example 2: Transfer of a standard value with details

```
<!-- green -->
<VALUE_IDREF>0173-1#07-WDA058#003</VALUE_IDREF>
<FVALUE_DETAILS>dark green</FVALUE_DETAILS>
```

Note: FVALUE_DETAILS can be used only once in context of a property. It is recommended to use this element only for single value properties.

Example 3: Readable free text values

(string translatable in context <FEATURE> without <FTEMPLATE>)

```
<!-- Value 1 -->
<FVALUE lang="eng">green</FVALUE>
<FVALUE lang="deu">grün</FVALUE>
<FVALUE lang="fra">vert</FVALUE>
<!-- Value 2 -->
<FVALUE lang="eng">white</FVALUE>
<FVALUE lang="deu">weiß</FVALUE>
<FVALUE lang="fra">blanc</FVALUE>
```

Note: The different translations of a specific value are listed in a contiguous block. Each block is then separated by a XML comment which specifies the meaning of the value in the block.

Data Types

eCI@ss supports different data types in context of string:

- STRING >> used for direct and indirect attributes
- STRING_TRANSLATABLE >> used for direct attributes only

This causes the following points:

- direct attributes (free text values) can be delivered in multiple languages
- indirect attributes (value lists) have always the data type STRING

3.5 Units of measure

- The eCI@ss unit and quantity system is harmonized with DIN and via DIN with UN/ECE. eCI@ss delivers a units file including all the harmonized units. These units have to be used in context of eCI@ss content (properties of <PRODUCT_FEATURES>). Please use IRDI values.

Example: <FUNIT>0173-1#05-AAA480#002</FUNIT>

- BMEcat in general uses UNECE units

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3.6 Nationalization conventions for FVALUE

The BMEcat documentation defines dot notation as the decimal separator character. This is also used in context of FVALUE.

Example:

```
<FVALUE>9.50</FVALUE>
```

3.7 MIME

3.7.1 MIME_SOURCE and MIME_ROOT

When using MIMES there has to be defined where referenced files are expected. In BMEcat this is achieved by two elements: MIME_ROOT (in HEADER) which can specify a base path or an URI under which the relative paths specified in MIME_SOURCE start. The strings are concatenated by “/”.

Example

- MIME_ROOT defines that all external files' relative paths start at <http://www.example.com/img>
- MIME SOURCE references "Charlie.jpg"
- Referenced file is expected to be found under <http://www.example.com/img/Charlie.jpg>

Note: When no MIME_ROOT is specified there is no behavior defined by BMEcat specification. An application can try to assume that the MIME_ROOT is the directory where the catalog file is located, but this will not necessarily be interpreted alike in a target system.

3.7.2 MIME_DESCR and MIME_ALT

According to BMEcat specification the content of MIME_DESCR and MIME_ALT is only informational, no logic can be expected to be triggered.

3.7.3 MIME_PURPOSE

There is no guarantee that a target system interprets the content of MIME_PURPOSE in a special way.

Example

```
<MIME_INFO>
  <MIME>
    <MIME_TYPE>image/jpeg</MIME_TYPE>
    <MIME_SOURCE>charlie.jpg</MIME_SOURCE>
    <MIME_DESCR>front view</MIME_DESCR>
    <MIME_ALT>picture charlie</MIME_ALT>
    <MIME_PURPOSE>normal</MIME_PURPOSE>
  </MIME>
  <MIME>
    <MIME_TYPE>application/pdf</MIME_TYPE>
    <MIME_SOURCE>charlie.pdf</MIME_SOURCE>
    <MIME_DESCR>description of the production process</MIME_DESCR>
    <MIME_ALT>pdf file about charlie</MIME_ALT>
    <MIME_PURPOSE>data_sheet</MIME_PURPOSE>
  </MIME>
</MIME_INFO>
```

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3.8 HEADER Information

Please see BMEcat standard documentation.

3.9 Article Attributes

Please see BMEcat standard documentation.

3.10 Valuation of eCI@ss elements

This chapter describes the referencing and valuation of eCI@ss classes and properties.

BMEcat 2005 element (node complete name)	eCI@ss element	Value	Input by
REFERENCE_FEATURE_SYSTEM_NAME	eCI@ss Version	ECLASS-8.0	Application
REFERENCE_FEATURE_GROUP_ID	eCI@ss classification no	27010390	Application

Table 3: Valuation of eCI@ss attributes

The valuation of eCI@ss properties and values is described separately in chapter 3.4.

3.11 PRODUCT DETAILS

Please see BMEcat standard documentation.

3.12 Mapping of eCI@ss BML to BMEcat 2005 PRODUCT_DETAILS elements

The table below shows a mapping of elements in eCI@ss 7.0 Basic List of Properties (BML) to the corresponding BMEcat 2005 elements.

The objective of the mapping is to suggest value equivalence and implies identical values to be put in BMEcat attributes and eCI@ss property valuation.

BMEcat 1.2 element (node complete name)	Mandatory / Optional	proposed Display name DE	eCI@ss Rel. 7.0 property ID	Input by
DESCRIPTION_SHORT	M	Artikelbezeichnung	0173-1#02-AAP805#001	User entry See Remark 1
DESCRIPTION_LONG	O	Langbeschreibung	n/a	User entry
EAN	O	GTIN	0173-1#02-AAO663#001	User entry
MANUFACTURER_NAME	O	Hersteller-Name	0173-1#02-AAO677#001	User entry
MANUFACTURER_ID	O	Hersteller-Artikelnummer	0173-1#02-AAO676#001	User entry
SUPPLIER_ID	O	Lieferanten-Artikelnummer	0173-1#02-AAO736#001	User entry

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MANUFACTURER_TYP E_DESCR	O	Produkt- Typbezeichnung	0173-1-02- AAO847#001	Partial match, see remark 3
-----------------------------	---	----------------------------	-----------------------	--------------------------------

Table 4: Mapping eCI@ss BML – BMEcat 2005 elements

Remark 1:

According to BMEcat DESCRIPTION_SHORT may be up to 80 characters long, but shall be unique within the 40 first characters (to be usable with systems like SAP). It should not contain abbreviated terms and have a clear and expressive language. Abbreviations of organizations and standards (e.g. DIN A4) may be used. DESCRIPTION_SHORT is not fully equal to 0173-1#02-AAP805-001 (Artikelbezeichnung), but the value may be taken over as a shortcut without violating the BMEcat specification.

Note 1: DESCRIPTION_SHORT should not simply be set to the preferred name of the class according to which the product is described due to the desired uniqueness.

Note 2: DESCRIPTION_LONG may contain a longer (up to 64k characters) textual description of the product (containing even HTML with < and > written as entities for XML compatibility).

Remark 2:

DESCRIPTION_SHORT can be interpreted as a “preferred name” for the product

DESCRIPTION_LONG can be interpreted as a “definition” for the product

Remark 3:

BMEcat and eCI@ss allows to transport the same information in different elements. See table above. If the value of an identical eCI@ss feature differs from a BMEcat feature, the BMEcat value is effective.

Note: The eCI@ss property code is fix. Only the version information can be changed with following eCI@ss releases.