

## Qualification Element

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### Document Version History

Version	Status	BDS Approval Date	TDS Issue Date	Modified by	Description
1.0	Approved: Recommended	23/07/2013	04/12/2013	ISB	New Standard.
2.0	Approved: Recommended	17/02/2014	07/04/2014	ISB	See changes from previous version section.
3.0	Approved: Recommended	18/11/2014	08/12/2014	ISB	Make the choice node following the QualificationElement_CN element sequence optional.
4.0	Approved: Recommended	24/02/2015	27/03/2015	ISB	Add elements QE_Admin_Code and Assessment_Medium_Type.
5.0	Approved: Recommended	19/08/2015	26/10/2015	ISB	Remove QE_Classification from Award. Remove Qualification_Type from the node Scheme.
6.0	Approved: Recommended	22/03/2016	26/04/2016	ISB	JCQ RFC Updates

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## 1 DATA STANDARD

### 1.1 Introduction

#### 1.1.1 Application

This Technical Data Standard (TDS) binds the Qualification Element Business Data Standard (BDS) to an XML Schema (XSD) representation.

This standard can be used to store or exchange data that covers the master data of qualifications. A qualification contains the data for a statement of achievement or knowledge which can be verified. A qualification is comprised of various components which are individually a type of QUALIFICATION ELEMENT. The QUALIFICATION ELEMENT can be of the types SCHEME, ASSESSABLE, AWARD, LEARNING UNIT or PATHWAY covering the various components in a qualification product. A Qualification Element may be related to one or more other Qualification Elements by means of a QE Relationship. QE Relationships are combinations of Scheme, Award, Pathways, Learning Units and Assessable that must be linked together in a qualification structure.

#### 1.1.2 Compatibility with non-ISB standards

There are no known compatibility issues related to this standard.



## 3 XSD NORMALISATION

### 3.1 Introduction

This section defines normalisation that has been applied. The Business Data Standard data model may contain multiple entities that inherit primary keys from a parent entity. In this situation the same primary keys will occur in multiple entities. If this pattern was translated directly to the xsd then the same primary key element(s) would be repeated within the xsd. When parsing the xml, if the element was referenced without xpath then the particular instance of the repeated primary key element could not be determined.

If all instances of the repeated primary key element(s) contained the same value then there would not be an issue. However, if there were different values in the repeated primary key element(s) then the value to be returned would be indeterminate. To prevent this situation the conversion from the Entity Relationship Diagram (ERD) model to the xsd involved normalisation to remove the repetition. This results in nodes being created in the xsd to define primary keys once and sub-nodes created that inherit those keys. This section will identify any normalisation that has taken place and how it has been implemented in the schema.

### 3.2 Details of Normalisation specific to Qualification Element

The Qualification Element design is a supertype/subtype design and as such an instance of the supertype is always accompanied by a subtype. The primary keys of that occur in both the super and subtypes are:

- Awarding Organisation Party Id
- AO Qualification Element Id
- Qualification Element Type

These primary keys are normalised in the schema by creating a single set of mandatory identifying elements under the QualificationElement node and QualificationElement\_CN node. The supertype Qualification Element entity attributes are defined under the QualificationElement\_CN node. The subtypes of Scheme, Award etc. are then set as choice nodes so that the result is:

- A single set of identifying elements
- A single set of attributes for the supertype Qualification Element

- A choice of either Scheme, Award, Assessable, Learning Unit or Pathway

There is a separate node under the QualificationElement\_DS for the QE Relationship entity elements.

As the content model has both the Qualification Element and the QE Relationship and either could be sent, the QualificationElement and QERelationship complex elements nodes are both optional. As both nodes could be sent they cannot be defined as choice elements.

## 4 XSD OPTIMISATION

### 4.1 Introduction

This section defines optimisation that has been applied to the xsd. The Business Data Standard data model may contain compound keys made up from a number of attributes. The sequence of the attributes in the Business Data Standard data model is defined to identify any opportunities for optimisation in encodings that can accommodate that capability.

An example is where the primary key contains the values of Party\_Id and then Event\_Id. This implies that a single Party\_Id may have many Event\_Ids. Encodings that can accommodate optimisation can define the Party\_Id once and then under that have many Event\_Ids. For xml encoding, a single Party\_Id element node can be defined with an unbounded list under that node for the Event\_Ids. This reduces the amount of data redundancy.

### 4.2 Details of Optimisation specific to Qualification Element

The Qualification Element structure is optimised as follows:

- Under the QualificationElement node there is compound primary key set (1) containing:
  - Awarding\_Organisation\_Party\_Id
- Under the above primary key set (1) there are multiple instances of QualificationElement\_CN node that holds the further primary key set (2) containing:
  - AO\_Qualification\_Element\_Id
  - Qualification\_Element\_Type

Therefore for one instance of primary key set (1) there are multiple instances of primary key set (2)

The QE Relationship is not optimised.

- When creating data for the Qualification Element primary keys there are two options available that both satisfy the xsd
- Option 1 – One Awarding\_Organisation\_Party\_Id with many QualificationElement\_CN

- Option 2 – One Awarding\_Organisation\_Party\_Id with one QualificationElement\_CN

Option 1 utilises the optimisation as there will be one Awarding\_Organisation\_Party\_Id with all of its QualificationElement\_CN(s)

Option 2 does not use the optimisation and repeats the Awarding\_Organisation\_Party\_Id against each QualificationElement\_CN

Providing Option 1 is coded for in the Application then either Option 1 or 2 Option can be supported. However, this is not true if Option 2 only is coded for as the program will not hold the Awarding\_Organisation\_Party\_Id in memory for use against each of its QualificationElement\_CN(s).

The recommendation is always to code for the optimisation method Option 1.



## 5 CHANGES FROM PREVIOUS VERSION

Add element Credit\_Value to the sequence following element QualificationElement\_CN.

Rename QE\_Effective\_Version\_End\_Date to QE\_Effective\_End\_DateTime. Amend data type to xs:dateTime

Rename QE\_Effective\_Version\_Date to QE\_Effective\_DateTime. Amend data type to xs:dateTime

Add element QER\_Effective\_DateTime to sequence following element QERelationship\_ID. Data type xs:dateTime, mandatory

Add element QER\_Effective\_End\_DateTime to sequence following element QERelationship. Data type xs:dateTime, optional

Remove element Guided\_Learning\_Hours\_Max from the Award

Remove element Guided\_Learning\_Hours\_Min from the Award

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## 6 REFERENCES

The following references are specific to this Technical Data Standard:

- ESCS ISB Consolidated XML (XSD) Schema, version 6.2, Qualification Element Content Model Version 1.17
- ESCS ISB Business Data Architecture Entity Relationship Diagram, version 12.2
- ESCS ISB, Business Data Standard, Qualification Element

The following references apply to all Technical Data Standards:

- ESCS ISB Standards Overview and Context
- ESCS ISB “System“ Enterprise Architecture - Business Data Architecture
- ESCS ISB Business Data Architecture Data Types

- ESCS ISB BDA Data Architecture Modelling Standards
- ESCS ISB Management Process

## 7 NOTES

None.

## 8 COPYRIGHT NOTICE

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