ISB Technical Data Standard ISB-000228

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 TDS
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

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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 defines a building block from which qualifications can be defined. The Qualification Element (QE) can represent an option, module, unit, component of a qualification. The QE is also used to define assessables eg examinations, performances etc and the rules of combination of QEs for a Qualification. More formally:

A Qualification Element describes a statement of achievement or knowledge which can be verified.

A Qualification Element must always be one of the following subtypes:

- Assessable – a part of a qualification structured representing an area of knowledge or capability that is discretely assessed
- Award – a part of a qualification structure that is certificated or enterable or reportable
- Learning Unit – a sub-division of a qualification to assist in the purposes of learning and assessment of knowledge or capability
- Pathway – a part of a qualification structure that groups together other Pathways, Assessable or Learning Units and contains the selection criteria to control the pathways available when making a booking for a qualification. May be referred to as rules of combination.
- Scheme – a part of a qualification structure comprising interrelated attributes that describe the overall behaviour of the structure

A Qualification Element may be related to one or more other Qualification Elements by means of a QE Relationship. QE

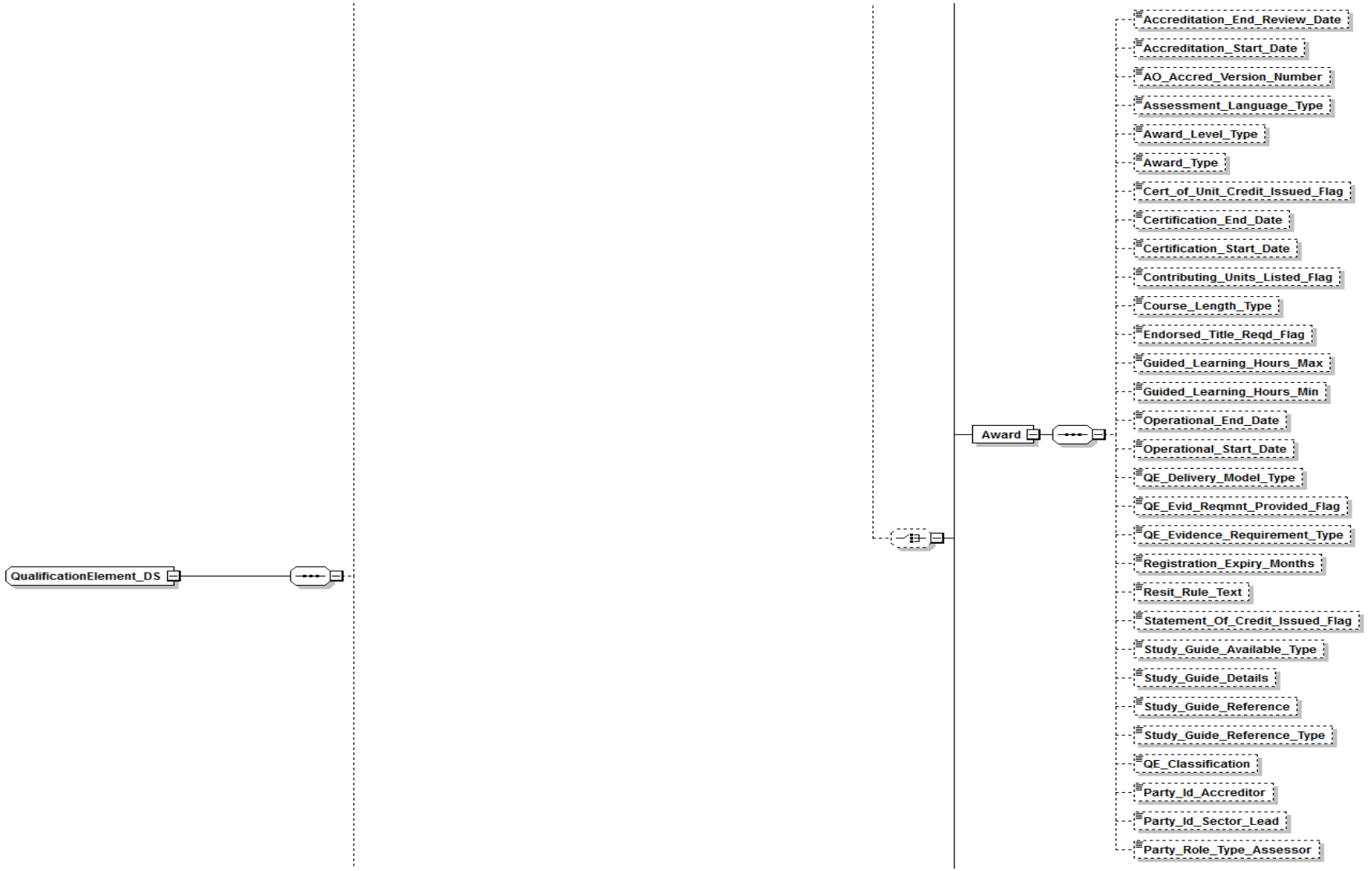
Relationships are combinations of Scheme, Award, Pathways, Learning Units and Assessable that must be linked together in a qualification structure.

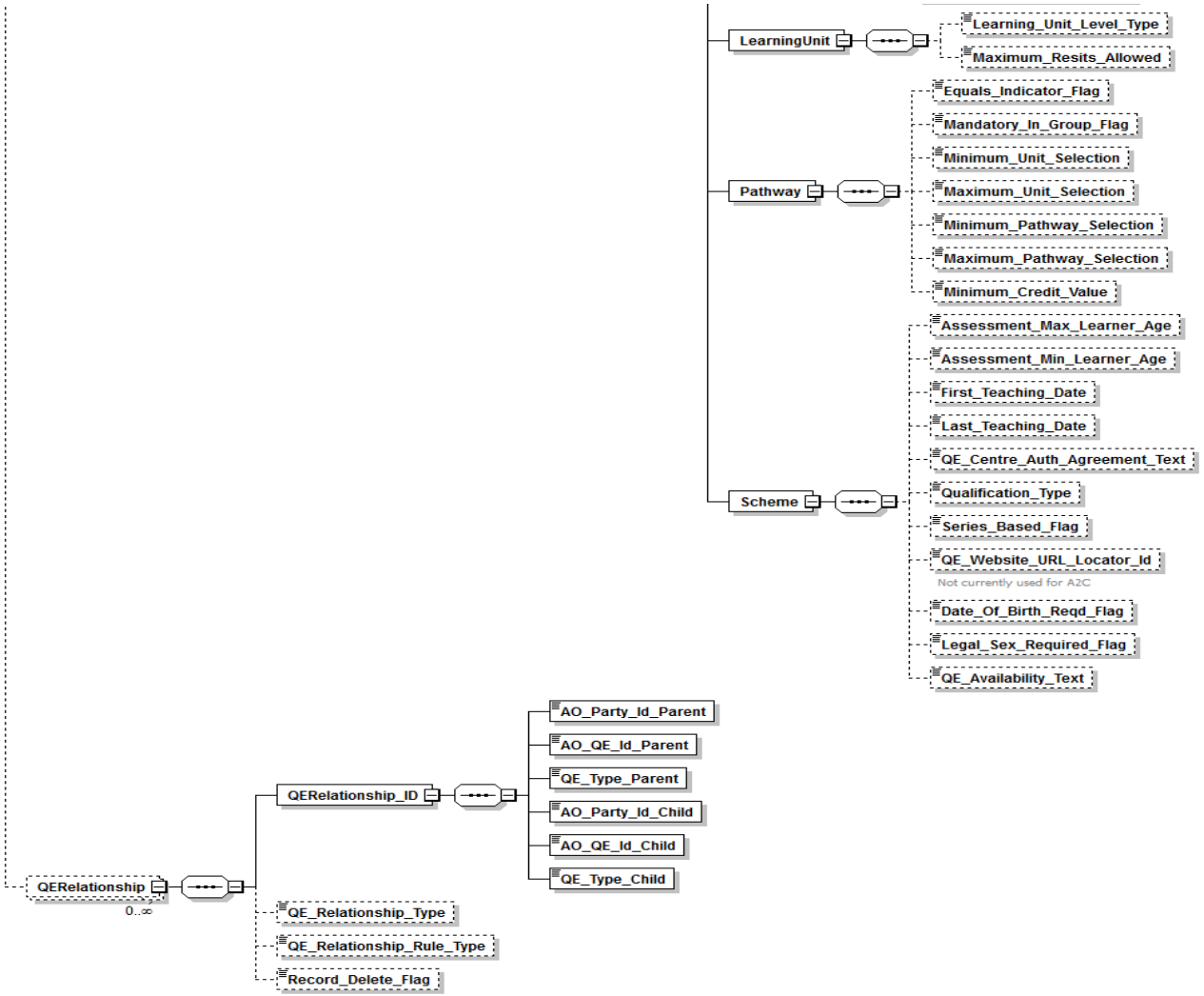
1.1.2 Compatibility with non-ISB standards

There are no known compatibility issues related to this standard.

2 XSD


AwardingOrganisation_ID
Awarding_Organisation_Party_Id
QualificationElement_ID
AO_Qualification_Element_Id
Qualification_Element_Type
QE_Description
Qualification_Element_Title
QE_Short_Title
QE_Effective_Version_Date
QE_Effective_Version_End_Date
Private_Learner_Type
QE_Moderation_Type
First_Language_Required_Flag
Record_Delete_Flag
Qualification_Reference_Number
Learning_Aim_Code
QualificationElement
0..∞
QualificationElement_CN
1..∞
Assessable
Extra_Time_Required_Flag
Assessment_Method_Type
Assmnt_Actual_DateTime_Reqd_Flag
Attendance_Data_Required_Flag
Cambridge_Assmnt_TimeZone_Num
Carry_Forward_Permissible_Flag
Maximum_Extra_Time_Minutes
On_Demand_Flag
QE_Timetabled_Flag
Test_Day_Photograph_Reqd_Flag
Tier_Level_Type
Tier_Level_Common_Reference
Time_Allowed_Mins
Party_Role_Type_Assessor
Party_Role_Type_ADT_Decider


QualificationElement_DS
Award
Accreditation_End_Review_Date
Accreditation_Start_Date
AO_Accred_Version_Number
Assessment_Language_Type
Award_Level_Type
Award_Type
Cert_of_Unit_Credit_Issued_Flag
Certification_End_Date
Certification_Start_Date
Contributing_Units_Listed_Flag
Course_Length_Type
Endorsed_Title_Reqd_Flag
Guided_Learning_Hours_Max
Guided_Learning_Hours_Min
Operational_End_Date
Operational_Start_Date
QE_Delivery_Model_Type
QE_Evid_Reqmnt_Provided_Flag
QE_Evidence_Requirement_Type
Registration_Expiry_Months
Resit_Rule_Text
Statement_Of_Credit_Issued_Flag
Study_Guide_Available_Type
Study_Guide_Details
Study_Guide_Reference
Study_Guide_Reference_Type
QE_Classification
Party_Id_Accreditor
Party_Id_Sector_Lead
Party_Role_Type_Assessor


LearningUnit
Learning_Unit_Level_Type
Maximum_Resits_Allowed
Pathway
Equals_Indicator_Flag
Mandatory_In_Group_Flag
Minimum_Unit_Selection
Maximum_Unit_Selection
Minimum_Pathway_Selection
Maximum_Pathway_Selection
Minimum_Credit_Value
Scheme
Assessment_Max_Learner_Age
Assessment_Min_Learner_Age
First_Teaching_Date
Last_Teaching_Date
QE_Centre_Auth_Agreement_Text
Qualification_Type
Series_Based_Flag
QE_Website_URL_Locator_Id
Not currently used for A2C
Date_Of_Birth_Reqd_Flag
Legal_Sex_Required_Flag
QE_Availability_Text
QERelationship
0..∞
QERelationship_ID
AO_Party_Id_Parent
AO_QE_Id_Parent
QE_Type_Parent
AO_Party_Id_Child
AO_QE_Id_Child
QE_Type_Child
QE_Relationship_Type
QE_Relationship_Rule_Type
Record_Delete_Flag

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

Make the choice node following the QualificationElement_CN element sequence optional

6 REFERENCES

The following references are specific to this Technical Data Standard:

- ESCS ISB Consolidated XML (XSD) Schema, version 1.19
- ESCS ISB Business Data Architecture Entity Relationship Diagram, version 8.01
- ESCS ISB XSD Content Model, version 1.14
- 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