



QQI

Quality and Qualifications Ireland
Dearbhú Cáilíochta agus Cáilíochtaí Éireann

QBS – XML File Format

QBS
File Upload Specification
XML File Format



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Change History

Date	Version	Description	Author
May 2012	001	Initial Version	A Creaner
12/07/2013	002	Update for QQI	J Byrne
04/10/2013	003	Appendix 1: Grade Code AWD added in <i>Special Purpose (Credits <60)</i> section	J Byrne



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QBS – XML File Format

1 Introduction

The purpose of this document is to outline the QQI (QBS) XML file upload format in sufficient detail as to allow a reader to generate valid result files for upload to QBS. **Extensible Markup Language (XML)** is a set of rules for encoding documents in machine-readable form.

This document is a guide for technical readers with exposure to the XML and XSD specifications as well as the legacy file formats in use within their organisations. It applies to the generation of files for the QBS results file upload process only.

2 The QQI (QBS) XML format

The XML format enables the result data to be defined in a hierarchical format and allows the application to take advantage of modern generic tools while processing and querying the learners' results data.

The XML file *character encoding format* should be **UTF8 – no BOM (UCS Transformation Format – 8-bit, no Byte Order Mark)**. This is typically the format used by XML generating applications. Uploading files that are not to this standard will return an *'Invalid File format'* error. The file upload format for QQI QBS, as defined in XSD, may be found in Appendix 2 of this document.



Sample XML file content

```
1 <upload>
2   <centre>
3     <code>00000W</code>
4     <learner-group>
5       <name>7M20025-1</name>
6       <learner>
7         <ppsn>00000000X</ppsn>
8         <first-name>Jane</first-name>
9         <last-name>Doe</last-name>
10        <gender>F</gender>
11        <dob>01-01-1990</dob>
12        <fees-exempt>N</fees-exempt>
13        <registration-number></registration-number>
14        <certificate>
15          <code>7X20025</code>
16          <achieved>Awarded</achieved>
17          <grade></grade>
18        </certificate>
19        <component>
20          <code>6X20056</code>
21          <grade>90</grade>
22          <rpl></rpl>
23          <appeal></appeal>
24        </component>
25        <component>
26          <code>6X20057</code>
27          <grade>P</grade>
28          <rpl></rpl>
29          <appeal></appeal>
30        </component>
31        <component>
32          <code>6X20058</code>
33          <grade>20</grade>
34          <rpl></rpl>
35          <appeal></appeal>
36        </component>
37      </learner>
38    </learner-group>
39  </centre>
40 </upload>
```

General usage guidelines

- Include all tags in the xml; if you have no data for a node, leave it empty e.g. <rpl></rpl>. Do not use XML 'shorthand' for empty fields (e.g. <rpl/>).
- The tag element names are case sensitive – use only lowercase.
- Do not include any comment tags in the xml
- Keep all of a learner's data together in a single <learner> node; avoid spreading a learners results data across multiple <learner> nodes
- The <registration-number> may optionally be used to insert a unique identifier for a learner, which is relevant to your own centre
- For ease of future reference, ensure that your Learner Group Name is meaningful to you
- Avoid duplicating award codes for a learner in the </code> tags of the <certificate> and <component> nodes

**QQI**Quality and Qualifications Ireland
Dearbhú Cáilíochta agus Cáilíochtaí Éireann**QBS – XML File Format****Note for Higher Education usage**

The terminology used by the xml tags is based on Further Education and can be clarified as follows;

Centre, Code	Unique reference number for your organisation, designated by QQI
Learner Group, Name	A logical grouping of students, typically those undertaking a given stage of a given programme
Learner, Fees-Exempt	Not applicable to Higher Education results
Learner, Registration-Number	May optionally be used to insert a unique identifier for a student which is relevant to your own centre
Certificate, Code	Unique reference number for your programme award, designated by QQI
Certificate, Achieved	The overall outcome achieved by the student on the programme ('Awarded', 'Component', 'Not Awarded'). When achieved = 'Awarded', the student is issued a parchment for the programme When achieved = 'Component', the student is issued a single subject certificate When achieved = 'Not Awarded', the student is not issued with any certificate or parchment
Certificate, Grade	The overall result achieved by the student on the programme (Grade Code)
Component, Code	Unique reference number for your programme subject(s), designated by QQI
Component, Grade	The percentage value achieved by the student in that subject (or a P (Pass), F (Fail) value as appropriate to the subject)
Component, RPL	Not applicable to Higher Education results
Component, Appeal	Not applicable to Higher Education results



2.1 Element: upload

Layout	<code><upload></code> <code></upload></code>
Required	Yes
Constraints	Keep as above: <ul style="list-style-type: none">- Do not include a namespace (NS) declaration in the root element.- Do not include an XSD declaration.

2.2 Element: centre

Layout	<code><upload></code> <code><centre></code> <code></centre></code> <code></upload></code>
Required	Yes
Cardinality	1..*
Child of	Upload
Constraints	Must have a child leaf element named code .

2.3 Element: centre - code

Layout	<code><centre></code> <code><code></code></code> <code></centre></code>
Required	Yes
Cardinality	1
Child of	Learner-group
Constraints	Must contain 6 characters: [0-9 A-Z]
Business Rules	<ul style="list-style-type: none">i) The code must be a valid centre code. Current valid Centre codes are 6 digits only or 5 digits followed by a capital letter (A-Z).ii) Where the upload user is a centre this code will be overridden.iii) Where this upload user is a provider this centre code must be associated with said provider.

2.4 Element: learner-group

Layout	<code><centre></code> <code><code></code></code> <code><learner-group></learner-group></code> <code></centre></code>
Required	Yes
Cardinality	1 *
Child of	Centre
Constraints	Must contain child leaf name element and child leaf learner element.

2.5 Element: learner-group - name

Layout	<code><learner-group></code> <code><name></name></code> <code></learner-group></code>
Required	Yes



Cardinality	1
Child of	Learner-group
Constraints	Must contain between 1 and 30 free text characters: [a-zA-Z_0-9]
Business Rules	If this value is empty then a learner group name will be generated by the system consisting of the current date and the centre code (as defined in element centre-code).

2.6 Element: learner

Layout	<pre><centre> <learner> </learner> </centre></pre>
Required	Yes
Cardinality	1*
Child of	Centre
Constraints	Must contain the following child leaf elements: <ul style="list-style-type: none">• ppsn• first-name• last-name• gender• dob

2.7 Element: learner - ppsn

Layout	<pre><learner> <ppsn></ppsn> </learner></pre>
Required	Yes
Cardinality	1
Child of	Learner
Constraints	Between 8 and 10 characters accepted
Business Rules	The value must be a valid PPSN

2.8 Element: learner - first-name

Layout	<pre><learner> <first-name></first-name> </learner></pre>
Required	Yes
Cardinality	1
Child of	Learner
Constraints	At least 1 character, any character including whitespace. Up to 30 free text characters will be accepted.

2.9 Element: learner - last-name

Layout	<pre><learner> <last-name></last-name> </learner></pre>
Required	Yes
Cardinality	1
Child of	Learner



Constraints	At least 1 character, any character including whitespace. Up to 30 free text characters will be accepted.
--------------------	---

2.10 Element: learner - gender

Layout	<learner> <gender></gender> </learner>
Required	Yes
Cardinality	1
Child of	Learner
Constraints	1 character accepted
Business Rules	Allowable characters are 'M' or 'F'

2.11 Element: learner - dob

Layout	<learner> <dob></dob> </learner>
Required	Yes
Cardinality	1
Child of	Learner
Constraints	DD/MM/YYYY style accepted (10 characters)
Business Rules	Must be a valid date

2.12 Element: learner - fees-exempt

Layout	<learner> <fees-exempt></fees-exempt> </learner>
Required	No
Cardinality	1
Child of	Learner
Constraints	1 character accepted – 'Y' or 'N' values only
Business Rules	The value should be 'Y' (to indicate Exempt) or 'N' (to indicate Payable). Any value other than 'Y' will be interpreted as 'N'. Not applicable to Higher Education results

2.13 Element: learner - registration-number

Layout	<learner> <registration-number></registration-number> </learner>
Required	No
Cardinality	1
Child of	Learner
Constraints	May contain between 0 and 12 free text characters: [a-zA-Z_0-9]



2.14 Element: learner - certificate

Layout	<learner> <certificate></certificate> </learner>
Required	No*
Cardinality	1
Child of	Learner
Constraints	Must contain a child leaf code element
Business Rules	

2.15 Element: certificate - code

Layout	<certificate> <code></code> </certificate>
Required	Yes
Cardinality	1
Child of	Certificate
Constraints	Must contain between 1 and 9 characters: [a-zA-Z_0-9]
Business Rules	<ul style="list-style-type: none"> i) Where the deprecated Further Education code is RAXXX is included code EYXXX ('Youthwork') is substituted upon upload ii) Where the deprecated Further Education code is MINR is included, code 920705 is substituted upon upload iii) Must be an active award code. iv) Should be unique for this learner in the current period/session (each Learner may only be submitted for one Certificate/Programme for a period/session).

2.16 Element: certificate - achieved

Layout	<certificate> <achieved></achieved> </certificate>
Required	No
Cardinality	1
Child of	Certificate
Business Rules	<p>The following values are valid:</p> <ul style="list-style-type: none"> - Component - Awarded - Not Awarded - or blank. <p>Any other value causes a 'Null' achieved value upon upload.</p> <p>If the award specified in <certificate><code> is a Further Education CAS (Common Award System) or NCVA award, <achieved> should be left empty (any values submitted are invalid). A value may be inserted for all other types of award (i.e. Higher Education awards and legacy Further education Awards).</p> <p>Note that when achieved is set to 'Component', a single subject certificate will be issued by QQI for Higher Education awards and a component certificate will be issued by QQI for Further Education awards.</p>

**2.17 Element: certificate - grade**

Layout	<pre><certificate> <grade></grade> </certificate></pre>
Required	No
Cardinality	1
Child of	Certificate
Constraints	Length <= 1 character.
Business Rules	<p>If the award specified in <certificate><code> is a Further Education CAS (Common Award System) or NCVA award, <grade> should be left empty (any values submitted will be discarded). A value may be inserted for all other types of award (i.e. Higher Education awards and legacy Further education Awards).</p> <p>See Appendix 1 for a list of the acceptable grade codes for the <certificate><code> element.</p>

2.18 Element: learner - component

Layout	<pre><learner> <component></component> </learner></pre>
Required	No
Cardinality	1
Child of	Learner
Constraints	Must contain a child leaf code element

2.19 Element: component - code

Layout	<pre><component> <code></code> </component></pre>
Required	Yes
Cardinality	1
Child of	Component
Constraints	Must contain between 1 and 8 characters: [a-zA-Z_0-9]
Business Rules	Must be an active component/subject code

2.20 Element: component - grade

Layout	<pre><component> <grade></grade> </component></pre>
Required	No
Cardinality	1
Child of	Component
Constraints	Constraints: Length <= 1 character
Business Rules	<p>See Appendix 1 for a list of the acceptable grade values for the <component><code> element.</p>

**2.21 Element: component - rpl**

Layout	<code><component></code> <code> <rpl></rpl></code> <code></component></code>
Required	No
Cardinality	1
Child of	Component
Constraints	1 character long - should be a '1' or '0'. Anything other than a '1' is interpreted as a '0'. '1' is 'yes', '0' is 'no'
Comment	<p>RPL – Recognition of Prior Learning. This is where a Centre/ Provider has applied for a version of a programme which will:</p> <ul style="list-style-type: none">• Certify Learners that either have a lot of experience in an area (but no certification), or• Certify a Learner with a Cert from some other location, through a 'conversion' course (rather than seek an exemption). <p>Ultimately, the Learners do what might be an expedited version of the equivalent programme and do the same examinations at the end. Selecting a '1' here indicates that this Centre has successfully applied for such a programme to be accepted and this Learner is on this course. It is optional and only used in this specific situation.</p> <p>Not applicable to Higher Education results.</p>

2.22 Element: component - appeal

Layout	<code><component></code> <code> <appeal></appeal></code> <code></component></code>
Required	No
Cardinality	1
Child of	Component
Constraints	1 character long - should be a '1' or '0'. Anything other than a '1' is interpreted as a '0'. '1' is 'yes', '0' is 'no'
Comment	<p>Appeal – this is an indicator for the Centre used to indicate that the Learner is undergoing an appeal <u>internal to the Centre/ Provider</u>. It does not indicate an appeal to QQI. It is optional and only used in this specific situation.</p> <p>Not applicable to Higher Education results.</p>

**2.23 QBS XML Formatting rules**

The following table indicates the formatting rules. Refer to the XSD for the structure of the XML file.

Group	Data	Mandatory	Nullable	Length	Acceptable data	Detail
centre		Yes				
	code	Yes	No	6	0-9A-Z	Current valid Centre codes are 6 digits only or 5 digits followed by a capital letter (A-Z).
learner-group		Yes				
	name	Yes	Yes	1 to 30	Any * ²	Free text characters
	programme	No	Yes	Up to 10	Any * ²	Free text characters
learner		Yes				
	ppsn	Yes	No	Up to 10	Must be a valid PPSN	e.g. 7 numbers followed by either one or two letters. May include leading zeroes.
	first-name	Yes	No	1 to 30	Any * ²	Free text characters
	last-name	Yes	No	1 to 30	Any * ²	Free text characters
	gender	Yes	Yes	1	M or F	
	dob	Yes	Yes	10	DD/MM/YYYY	
	fees-exempt	No		1	Y or N	
registration-number	No			Up to 12	Any * ²	Free text characters



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Group	Data	Mandatory	Nullable	Length	Acceptable data	
certificate		No				
	code	Yes ^{*1}	No	1 to 9	a-zA-Z0-9	
	achieved	No	Yes		The following values are valid: <ul style="list-style-type: none"> - Component - Awarded - Not Awarded - (Null) Any other value causes a 'Null' achieved value	
	grade	No	Yes		See Appendix XXXXX for a list of the acceptable values.	
Group	Data	Mandatory	Nullable	Length	Acceptable data	Detail
component		No				
	code	Yes ^{*1}	No	1 to 9	a-zA-Z0-9	
	grade	No	Yes		See Appendix XXXXX for a list of the acceptable values.	
	rpl	No	Yes	1	1 or 0	'1' is 'yes', '0' is 'no'
	appeal	No	Yes	1	1 or 0	'1' is 'yes', '0' is 'no'

^{*1} if group is present.

^{*2} any character or white-space.

Column legend

Group: refers to the same named XML node within the upload file

Mandatory: if 'yes' then the node is required to be present.

Length: refers to the permissible length of the data value.

Data: refers to the leaf nodes (which contain the data) within the group nodes.

Nullable: if yes then the data may be empty.

Acceptable data: describes the data's permissible format.

For example, the 'centre' tag must be present in the XML with a child tag named 'code' that in turn must have a value with between 1 and 6 (inclusive) alphanumeric characters. So '12345A' or '123456' is valid for a centre code whereas '123456A' is invalid.



2.24 Error categories

In general, there are two categories of error in the file upload, which elicit either fatal errors or warnings.

2.24.1 Fatal Errors

The fatal errors listed below halt the upload and require the file to be corrected and uploaded.

Error	Message
Malformed XML	The file format is invalid.
Missing centre tag	The file format is invalid. The centre must be present.
Missing centre code	The file format is invalid. The centre code must be present.
Missing learner group tag	The file format is invalid. The learner group must be present.
Missing learner tag	The file format is invalid. The learner must be present.

2.24.2 Warnings

Warnings allow the user to choose whether to continue uploading the file or cancel and upload a corrected version of the file. Warnings are listed for any other fields failing the validation rules such as an invalid PPSN. If the user chooses to continue, the learners with these errors shall be available for edit in the Invalid Entries section of the online application.



Appendix 1

Acceptable values for Further Education component results;

The grade must be one of:	Applicable levels
D – distinction	Levels 4, 5, 6
M – merit	
P – pass	
U – unsuccessful	
Null/ blank	
S – successful or	Levels 1, 2, 3
Null/ blank	
The grade must be one of:	Applicable levels
D – distinction	Levels 4, 5, 6
M – merit	
P – pass	
U – unsuccessful	
Null/ blank	
S – successful or	Levels 1, 2, 3
Null/ blank	

Acceptable values for Further Education certificate results;

Acceptable values for Higher Education subject results;

Numeric value between 0 and 100 (inclusive) representing a student's percentage grade

Or

P (Pass), F (Fail) if appropriate to the subject

**Acceptable values for Higher Education programme award results;**

Higher Certificate		
Grade Code	Grade Description	Achievement
D	Distinction	Awarded
M1	Merit Grade 1	Awarded
M2	Merit Grade 2	Awarded
P	Pass	Awarded
Ordinary Bachelor Degree		
Grade Code	Grade Description	Achievement
D	Distinction	Awarded
M1	Merit Grade 1	Awarded
M2	Merit Grade 2	Awarded
P	Pass	Awarded
Honours Bachelor Degree		
Grade Code	Grade Description	Achievement
H1	1st Class Honours	Awarded
H21	2nd Class Honours Grade 1	Awarded
H22	2nd Class Honours Grade 2	Awarded
P	Pass	Awarded
Higher Diploma		
Grade Code	Grade Description	Achievement
H1	1st Class Honours	Awarded
H21	2nd Class Honours Grade 1	Awarded
H22	2nd Class Honours Grade 2	Awarded
P	Pass	Awarded
Postgraduate Diploma		
Grade Code	Grade Description	Achievement
D	Distinction	Awarded
M	Merit	Awarded
P	Pass	Awarded
Masters Degree (Taught)		
Grade Code	Grade Description	Achievement
H1	1st Class Honours	Awarded
H2	2nd Class Honours	Awarded
P	Pass	Awarded
Masters Degree (Research)		
Grade Code	Grade Description	Achievement
REC	Recommended	Awarded
NREC	Not Recommended	Not Awarded
Doctoral Degree		
Grade Code	Grade Description	Achievement
REC	Recommended	Awarded
NREC	Not Recommended	Not Awarded

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Minor Award		
Grade Code	Grade Description	Achievement
P	Pass	Awarded
Special Purpose (Credits >=60)		
Grade Code	Grade Description	Achievement
D	Distinction	Awarded
M1	Merit Grade 1	Awarded
M2	Merit Grade 2	Awarded
P	Pass	Awarded
Special Purpose (Credits <60)		
Grade Code	Grade Description	Achievement
AWD	Awarded	Awarded
Non Standard (may be used with all of the above)		
Grade Code	Grade Description	Achievement
ABS	Absent from Examination	Not Awarded
DEF	Deferral of Result(s)	Not Awarded
EXE	Exemption(s) Granted	Not Awarded
FAIL	Fail	Not Awarded
NR	Not Recorded	Not Awarded
WDRW	Withdrew from Course	Not Awarded
WHLD	Student's Result(s) Withheld	Not Awarded



```

    <simpleType>
      <restriction base="string">
        <pattern value="(M|m|F|f){1}"/>
      </restriction>
    </simpleType>
  </element>
  <element name="dob">
    <simpleType>
      <restriction base="string">
        <pattern value="((0[1-9]|[12][0-9]|3[01])[-/](0[1-9]|1[012])[-/](19|20)\d\d){1}"/>
      </restriction>
    </simpleType>
  </element>
  <element name="fees-exempt" type="string" minOccurs="0" maxOccurs="1"
nillable="true"/>
  <element name="registration-number" type="string" minOccurs="0" maxOccurs="1"
nillable="true"/>
  <element name="address" type="ct:address" minOccurs="0" maxOccurs="1"/>
  <element name="certificate" type="ct:certificate" minOccurs="0" maxOccurs="1"/>
  <element name="component" type="ct:component" minOccurs="0"
maxOccurs="unbounded"/>
  <element name="declaration" minOccurs="0" maxOccurs="1">
    <complexType>
      <sequence>
        <element name="submitter-name">
          <simpleType>
            <restriction base="string">
              <pattern value="[\w\sW]{1,}"/>
            </restriction>
          </simpleType>
        </element>
        <element name="position">
          <simpleType>
            <restriction base="string">
              <pattern value="[\w\sW]{0,}"/>
            </restriction>
          </simpleType>
        </element>
      </sequence>
    </complexType>
  </element>
</sequence>
</complexType>
</element>
</sequence>
</complexType>
</element>
</sequence>
</complexType>
</element>
</sequence>
</complexType>
</element>
</schema>
  
```



2.26 Complex Types Schema file (XSD) - complexTypes.xsd

```
<?xml version="1.0" encoding="UTF-8"?>
<schema xmlns="http://www.w3.org/2001/XMLSchema" targetNamespace="complexTypes.xsd">
  <complexType name="address">
    <sequence>
      <element name="line1">
        <simpleType>
          <restriction base="string">
            <pattern value="[\\s\\W]{1,}"/>
          </restriction>
        </simpleType>
      </element>
      <element name="line2" type="string" nillable="true" minOccurs="0"/>
      <element name="line3" type="string" nillable="true" minOccurs="0"/>
      <element name="line4" type="string" nillable="true" minOccurs="0"/>
    </sequence>
  </complexType>
  <complexType name="certificate">
    <sequence>
      <element name="code">
        <simpleType>
          <restriction base="string">
            <pattern value="[\\s]{1,9}"/>
          </restriction>
        </simpleType>
      </element>
      <element name="achieved" type="string" nillable="true" minOccurs="0"/>
      <element name="grade" type="string" nillable="true" minOccurs="0"/>
    </sequence>
  </complexType>
  <complexType name="component">
    <sequence>
      <element name="code">
        <simpleType>
          <restriction base="string">
            <pattern value="[\\s]{1,9}"/>
          </restriction>
        </simpleType>
      </element>
      <element name="grade" type="string" nillable="true" minOccurs="0"/>
      <element name="rpl" type="string" nillable="true" minOccurs="0"/>
      <element name="appeal" type="string" nillable="true" minOccurs="0"/>
    </sequence>
  </complexType>
</schema>
```