



Joint Council for
Qualifications^{CIC}



JCQ^{CIC} A2C Data Standards Specification

Section 1

Introduction

2018 Version

18th January 2018

Table of Contents

1	Specification Sections	3
2	Introduction	4
2.1	Why?	4
2.2	What?	4
2.3	How?	5
2.4	When?	5
2.5	Who?	5
3	Twin Track Strategy	6
3.1	Twin Track Business Strategy	6
3.2	Alignment of Awarding Organisation and Centre Data	7
3.3	Extranet Assumptions.....	7
4	Harmonisation.....	8
4.1	Centre Setup Notifications	8
4.2	Product Catalogue.....	8
4.3	Order Processes.....	9
4.4	Centre Assessed Outcomes.....	9
4.5	Attendance Data	9
4.6	Results.....	9
4.7	Awarding Organisation to Centre Notifications	9
4.8	Key Events	9
5	High Level Process Diagram	10

1 Specification Sections

01	Introduction
02	Centre Setup
03	Product Catalogue
04	Orders
05	Centre Assessed Outcomes and Award Claims
06	Results
07	Attendance
08	Awarding Organisation to Centre Notifications
09	Feedback
10	Data Architecture
11	Solutions Architecture
12	A2C Transport Specification
Appendix 1	Logical Data Model
Appendix 2	Reference Data
Appendix 3	Transactions, Data Blocks and Service Codes
Appendix 4	Data Architecture Diagrams
Appendix 5	Feedback Messages
Appendix 6	Glossary

Note:

- Sections have been renumbered since 2017 spec.

2 Introduction

This specification replaces the *JCQ Formats for the Exchange of Examinations Related Data*. The new standard will also replace Pearson's EDIFACT and City & Guilds' Walled Garden formats. All JCQ^{CIC} awarding organisations have agreed in principle to the acceptance of data using the common formats described in this booklet.

You may find it useful when reading this specification to refer to the glossary in Appendix 6.

Awarding organisations, Management Information System (MIS) suppliers and other interested parties should note that the A2C Data Standards Specification may be revised in the future. Any future revisions will be made through the JCQ^{CIC} Standards Board in consultation with relevant stakeholders and will appear on the Joint Council for Qualifications^{CIC} website.

The Joint Council for Qualifications^{CIC} (JCQ^{CIC}) awarding organisations produced the A2C Data Standards in collaboration with a number of stakeholders. Designed to improve the process formerly known as Electronic Data Interchange (EDI) the A2C standard redefines the data transferred between awarding organisations and centres, bringing the system into the 21st century. The new system will support both vocational and general qualifications.

2.1 Why?

The standard EDI process, defined in the 1980s, to allow JCQ awarding organisations to exchange operational information with centres, has become unfit for purpose.

Originally developed in a world of linear general qualifications, various workarounds have had to be introduced to ensure that EDI can support the increasingly broad range of qualifications on offer. This has made the system inefficient and cumbersome. It has also meant that the current formats have been inconsistently applied across awarding organisations, making interpretation overly complicated for MIS suppliers and centres.

The A2C Data Standards have been established to resolve this. The overriding principles governing the production of the standard were those of harmonisation and efficiency, and these principles drove the modernising of the data and its associated scope. The objective is to provide new standards for data exchange, align data structures with the Information Standards Board (ISB) data model, commissioned by the Department of Education, and to ensure quality, consistency and ease of use for Awarding Organisations and centres.

2.2 What?

The A2C Data Standards replace the *JCQ Formats for the Exchange of Examinations Related Data*, Pearson's EDIFACT and City & Guilds' Walled Garden formats and can potentially be used by **any** awarding organisation for **any** qualification.

The A2C Data Standards will help centres communicate with awarding organisations in a consistent way and comprises redefined business processes, a new data structure and an Extensible Mark-up Language (XML) messaging standard.

This standard provides the necessary detail for software to be written which will enable the data to be extracted from the centre's database or data files and presented in an acceptable common format for multiple awarding organisations, inclusive of non JCQ^{CIC} awarding organisations that choose to use the standard.

Please note, the JCQ^{CIC} awarding organisations will not accept data which does not conform to the common file structure and for which prior approval has not been given.

2.3 How?

The JCQ^{CIC} awarding organisations worked alongside a number of representative stakeholder groups, including MIS suppliers and centre staff, to create the A2C Data Standards. The JCQ^{CIC} awarding organisations had to ensure that the business processes they defined met the needs of all stakeholders and both general and vocational qualifications. Once harmonised, these business processes and rules were used to create a data model and an XML schema.

2.4 When?

The JCQ^{CIC} A2C Data Standards were effective from September 2015. They will run in parallel alongside the *EDI JCQ Formats for the Exchange of Examinations Related Data*, the Pearson EDIFACT standard and the City & Guilds' Walled Garden Formats.

Please see the guidance in Section 2 for clarification on the transition between EDI and A2C formats.

2.5 Who?

The A2C Data Standards Specification has been developed for the JCQ^{CIC} awarding organisations (England, Scotland, Wales and Northern Ireland), MIS suppliers and any other organisation that wishes to use the standard.

If you have any questions about the A2C Data Standards Specification please contact JCQ^{CIC} at:

4 Millbank, London SW1P 3JA

Tel 020 7638 4132

www.jcq.org.uk/about-a2c

a2cenquiries@jqc.org.uk

3 Twin Track Strategy

The Twin Track Strategy is essentially a way to use A2C Data Standards to improve operational efficiency for both centres and awarding organisations. Within this, there is also a low level strategy to help keep centre data and awarding organisation data aligned across the two tracks. The two aspects are covered below.

3.1 Twin Track Business Strategy

JCQ^{CIC} awarding organisations have many different operational ways of interacting with centres. Some of these are efficient but others are not. The Twin Track Strategy is about moving towards a focus on the two most efficient kinds of transactions:

- For centres with a management information system (MIS), business-to-business style operations where the centre's MIS and the awarding organisation's systems communicate directly: bulk data for core transactions are exchanged simply and reliably from within the centre's and awarding organisation's systems.
- For centres without a MIS, business-to-customer style operations where centre staff can use the awarding organisation's secure extranet or other secure methods to exchange data: they can then view, print and manage their data via the extranet or equivalent.

The Twin Track Strategy is aspirational for the JCQ^{CIC} awarding organisations. Whilst the speed and extent that any awarding organisation implements the full strategy is outside the scope of the A2C Project, its principles have been accommodated within the A2C Data Standards.

- JCQ^{CIC} awarding organisations have committed to collaborating over the A2C Data Standards (whilst competing over extranet services) so that MIS can have stable processes that are independent of the awarding organisation.
- The A2C Data Standards include a data model that is flexible enough to accommodate most qualifications and processing models. The scope is broad and there are no barriers to non-JCQ^{CIC} awarding organisations using the standards.
- The standards cover the core transactions where transcribing or rekeying would be particularly onerous and prone to errors.
- Transactions that are specific to an existing learner and idiosyncratic value added services offered by individual awarding organisations are out of scope where they are more suited to extranet-style operations. Constraining the scope in this way will keep the standards stable over time so that expensive reworking of systems is kept to a minimum. It is intended that many changes will be accommodated with business rule changes or type lists rather than changes to the underlying data model or the XML schema.

Centres following either the A2C track or the extranet track will maintain data integrity. It is strongly recommended that centres choose one of the tracks for all their core transactions rather than a mixture of both. This rigour could legitimately be enforced with a business rule set by a centre, a MIS supplier or an awarding organisation – but will not be assumed in the A2C Data Standards.

However, it is recognised in the A2C Data Standards that there may be exceptional circumstances where a centre with a MIS (essentially using the A2C track) has occasion to undertake a transaction over the telephone, on paper or on an awarding organisation's extranet or computer based testing (CBT) application, eg an emergency entry amendment or a late entry for a pirate candidate. This can lead to mismatches between the learner-specific data held in the awarding organisation's system and the centre's MIS. Some differences can be tolerated,

but others will cause difficulties, such as when the awarding organisation issues a GCE or GCSE result and the receiving MIS does not have any entry record to match it against on a busy results day.

Awarding organisations may offer extranet services as part of a wider set of services targeted at teaching staff rather than authorised MIS administrators in centres. It is therefore reasonable to assume that some centres may choose to use the awarding organisation's extranet service rather than their MIS for particular transactions and that it would not be in the awarding organisation's interests to discourage this if it formed part of a wider strategy for the development of services to teaching rather than administrative staff that was, by its nature, outside the intended scope of the A2C programme.

3.2 Alignment of Awarding Organisation and Centre Data

To address the situation described above, there is an Awarding Organisation to Centre Notification process in the A2C Data Standards. Where an awarding organisation receives important data changes from a centre outside the normal A2C route, this process is designed to feedback the changes through the A2C route to the centre's MIS. The specific transactions in scope are:

- Orders (Registrations, Named and Unnamed Entries) where one has not already been submitted
- Cancellation of a previous Order
- Centre Assessed Outcomes where an Order has not been submitted
- Examination Attendance
- Award Claims where an Order has not been submitted
- Test Resource Booking (on-screen test)
- Late Award Cash-ins

The A2C Data Standards provide guidance on what a receiving MIS should do with an Awarding Organisation to Centre Notification message:

- The minimum should be that a warning message is displayed and logged.
- It is recommended that the MIS user has an option to allow the content of the message to be imported into the MIS appropriately.
- Rejecting an Awarding Organisation to Centre Notification message does not invalidate the submission made through the non-A2C route.
- If the update is applied to the MIS, either manually or automatically, it should not generate an A2C message back to the awarding organisation. (The MIS may need to have a way of identifying changes made in response to an Awarding Organisation to Centre Notification message.)

3.3 Extranet Assumptions

- It is assumed that the data captured in an awarding organisation's extranet process is sufficient for the awarding organisation to include a full set of information in the Awarding Organisation to Centre Notification message.
- It is unlikely that a centre which has chosen to use the extranet track for core transactions will have occasion to use the A2C track. However, if this were to happen, it is assumed that the information supplied via A2C will update the awarding organisation's systems and will, therefore, be visible to the centre via the extranet. It will not be necessary for the centre to add the information to the extranet manually.

4 Harmonisation

Work on the A2C Data Standards has presented an opportunity for greater harmonisation across awarding organisations. Harmonisation benefits centres by reducing the need to know that something has to be done differently for a particular awarding organisation. With fewer exceptions, processes run more efficiently and fewer mistakes are likely.

One of the main improvements is that the A2C Data Standards define more than just the physical file formats for structuring data transfers. By defining the whole context including business processes, business rules, data architecture, type lists and best practice recommendations, there is limited opportunity for different interpretations.

Harmonisation offers other improvements:

- The A2C product catalogue includes systematic data about the processing requirements of each individual qualification, which can be used by management information systems rather than a centre needing to know them.
- Generic processes are defined which are independent of specific qualifications. The standards do not mandate what processes must be used for a qualification but, where an awarding organisation uses a process for a qualification, it will be able to use the standard process.
- A harmonised vocabulary has been used in the standards which encompasses all types of qualifications. Terms are defined and there is a glossary.
- Relevant parts of the standards have been devised in collaboration with the Information Standards Board for Education Skills and Children's Services. This should facilitate harmonisation with other activities in centres that use data about learners, qualifications and awards.

However, there are desirable aspects of harmonisation that the standards can only facilitate. For instance, whilst the standards cannot mandate the universal adoption of the Unique Learner Number (ULN) as the sole personal identifier, they do provide a realistic path towards that goal. Without needing to amend the standards, awarding organisations can, qualification by qualification, introduce the ULN as a mandatory identifier and gradually remove other identifiers. Further opportunities for harmonisation will be considered during the implementation of the standards.

4.1 Centre Setup Notifications

This process provides a common way for alerting awarding organisations that a centre is using an A2C compliant MIS. It has been introduced through A2C, and so it is expected that it will operate in a harmonised way.

4.2 Product Catalogue

Product catalogue is the new name given to what was previously known as basedata. This new term has been used to harmonise terminology across all awarding organisations.

Once a centre MIS is A2C compliant awarding organisations will make product catalogue data available via A2C interfaces. Product catalogue data will be far more enriched than previous basedata issued and will include both general and vocational qualifications offered across all the participating awarding organisations.

4.3 Order Processes

This covers order processes for Unnamed and Named Orders (Registrations and Entries), Late Award Cash-ins and Test Resource Bookings. Some or all of these processes are currently supported by JCQ EDI Formats, the Pearson EDIFACT format and City & Guilds' formats. Where not supported by one of these formats, a process may occur on awarding organisation secure extranets where appropriate.

A2C will allow for a more harmonised approach since all of these order processes, along with processes for managing learner details and cancelling orders, will be available using the A2C interface. The processes which are relevant for each qualification will be defined in the product catalogue issued by each awarding organisation; this allows awarding organisations to cater for the particular requirements of individual specifications. However, the processes for orders have been harmonised into a common approach so that, where a process is used, it will operate in the same way irrespective of the awarding organisation or qualification. It should be noted that awarding organisations have not harmonised on all of the deadlines related to order processes – see section on Key Events below.

4.4 Centre Assessed Outcomes

This process provides a common way for reporting outcomes and award claims for both general and vocational qualifications while maintaining the flexibility required to support a variety of different operating models.

4.5 Attendance Data

In terms of harmonisation, the management and processing of electronic attendance data will mean that centres no longer have to deal with different printed attendance registers from different awarding organisations – generic attendance registers (if required) will be produced by the MIS.

4.6 Results

Results outcome data will be harmonised and significantly enriched to include contributing outcomes, certification detail where appropriate, data previously issued via secure extranets and updates to the product catalogue to support centre staff (raw mark grade boundaries).

4.7 Awarding Organisation to Centre Notifications

All A2C awarding organisations are committed to aligning their data with centre held data. This process aims to allow a centre's MIS to remain as up to date as possible in relation to all their activity with all the participating awarding organisations, distinguishing how the data has been transmitted for each submission where A2C has not been used.

4.8 Key Events

The Key Events concept used within A2C is applicable to series and non-series related qualifications. It is envisaged that Key Events will facilitate harmonisation of the series concept across all awarding organisations while also catering for academic years and calendar years which may be more relevant for vocational products and on-demand qualifications.

5 High Level Process Diagram

This high level process diagram shows the various stages of the examination cycle. A key can be found on the following page.

The process diagrams in each section show the end-to-end business processes in more detail and are designed for use with end-users, eg examination officers.

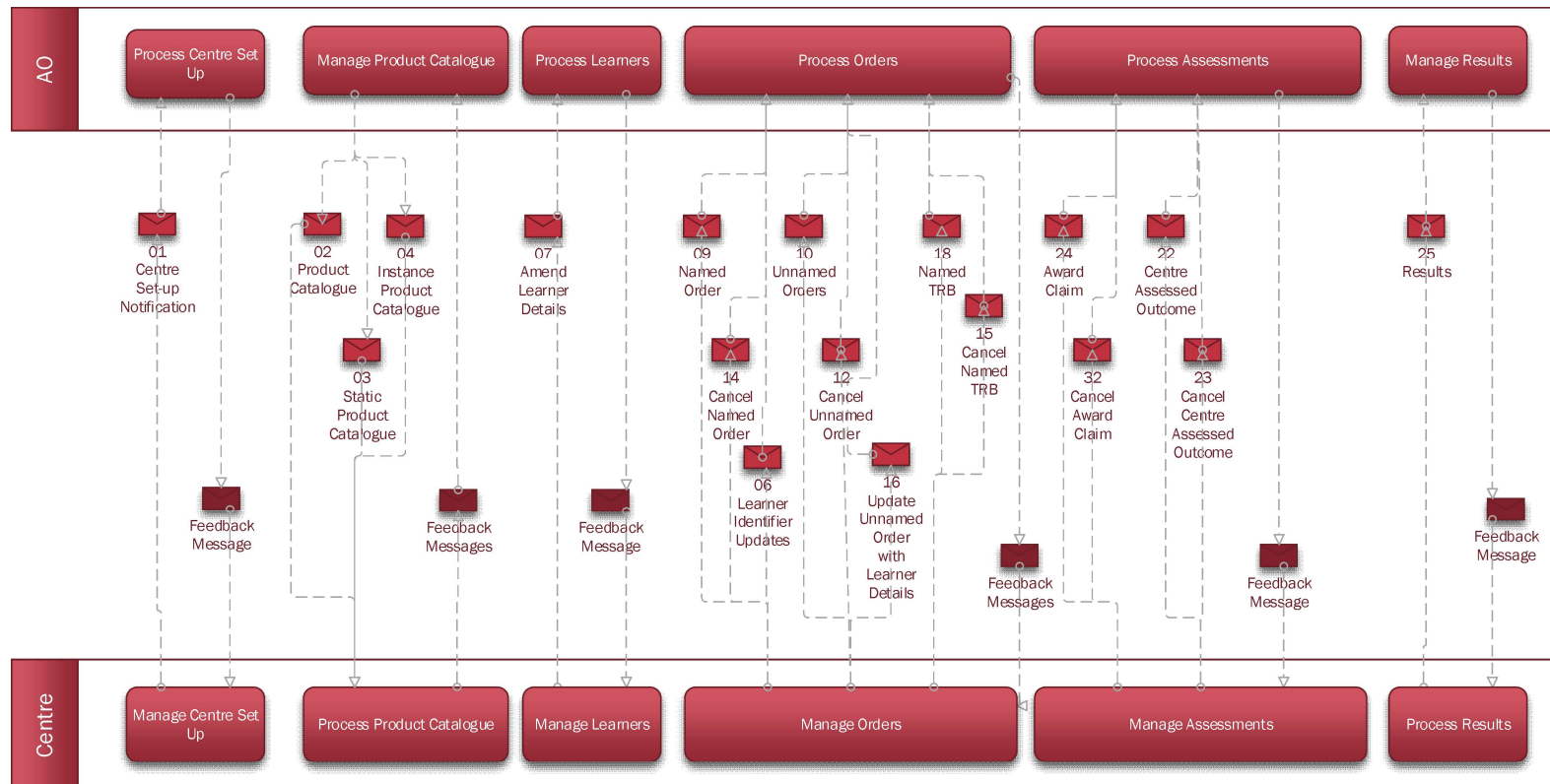


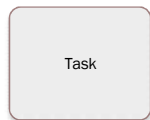
Figure 1 High Level Process Diagram

Note that the use of the terms 'Manage' and 'Process' in this diagram are not intended to relate to the use of those terms in the Action Codes defined in Appendix 3. The Action Codes which include the word 'Manage' all relate to management of feedback and those which include the word 'Process' relate to the initial submission by centres of messages for orders, etc or publication of product catalogues, results etc by awarding organisations.

Process Diagram Key



A Pool encloses all process activity within the scope of an organisation or group of organisations. All tasks and sub-processes must lie within a pool.
A pool can optionally be sub-divided by swim lanes to show organisational sub-divisions of the pool.



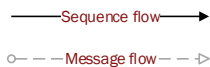
A Task is the basic unit of activity in a process model.



Messages trigger activity in another pool. A pool that receives a message will have inside it an initiating or intermediate event that receives the message and causes flow to pass on to a task or sub-process.



Data Object



Sequence flow shows activity flow sequence between one task or sub-process to another. Sequence flow can occur only within a Pool. Between pools, message flow must be used.



Start Event

A Start Event initiates activity in a process.



Intermediate Event

An Intermediate Event indicates that flow does not proceed until the event has occurred.



End Event

An End Event terminates activity in a process.



Link



Timer



Message



Gateway

A Gateway shows conditional branching out or joining back together of flow.



Parallel

Figure 2 Process Diagram Key