

ISO 20022 Business Application Header Frequently Asked Questions

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Introduction

Since the time when the Business Application Header (BAH) was first conceived in 2010, it has been a topic of interest for ISO 20022 implementer communities. The ISO 20022 Registration Management Group initiated these Frequently Asked Questions, together with their answers, to shed a little light on this subject.

1. Why was the BAH introduced?

The first implementations of ISO 20022 messages were designed with the anticipation that the data required by the network over which the messages were carried would be derived from the related business elements of the ISO 20022 messages. Later implementations found that it would be useful if the underlying business elements from which the network would derive its information could be made available in a standardised form. Rather than come up with a solution outside the ISO 20022 standard, these later implementers engaged the ISO 20022 community to establish a common means of conveying the required data.

2. Why is the BAH separate from the ISO 20022 message?

At the time that the BAH was introduced, in order to minimise the impact on existing implementations, the data elements were gathered in an independent header, for optional use. The published ISO 20022 message definitions were not affected. However, note that some ISO 20022 messages have subsequently been adapted so that fields duplicated in the BAH were removed from the ISO 20022 message definition. Moreover, most business justifications submitted following the introduction of the BAH do not, from the outset, duplicate BAH elements in the ISO 20022 messages developed.

3. Does that mean that the header should be 'stripped away' from the rest of the ISO 20022 message by the receiving organisation's systems?

Quite to the contrary. The BAH forms part of the business message itself and remains with it all the way to the target business application. It contains business information, such as the time that the message was prepared, who sent it, and more. This data can affect the business decisions required at the target application.

4. What is the purpose of the BAH?

The purpose of the BAH is to provide a consistent and predictable way for its data elements to be conveyed with the message in a standardised and harmonised form, regardless of implementation factors such as the choice of network. The BAH enables standardised message processing functions such as message routing, specifying a business context (e.g. market practice and/or business service), message indexing, filtering and sorting. This supports the automation of business process and message flows.

Whilst the BAH is separate from the network-level protocols, the data elements in the BAH can be used in order to derive the network-specific parameters that are commonly found in network protocol headers.

The use of the BAH does not preclude the duplication of its elements in the ISO 20022 message definitions.

5. What is the Business Application Header?

The Business Application Header gathers in one place those elements of an ISO 20022 message that are common to most ISO 20022 message definitions across all domains such as

- which organisation has sent the business message,
- which organisation should be receiving it,
- the creation date of the business message,
- a unique identifier of the business message,
- the identity of the message itself,

The classification of the BAH as a 'header' stems from the intent that the BAH is to be sent ahead of the pertinent ISO 20022 message body, in the same envelope. Together with its accompanying ISO 20022 message, the BAH forms a so-called ISO 20022 business message.

The BAH itself is defined by an ISO 20022 message definition with the message definition identifier 'head.001.001.nn' and the root element 'AppHdr'.

6. What is in the BAH?

Full details can be found on the ISO 20022 website www.iso20022.org, “Catalogue of messages”, “Business application header (BAH)”.

The key data are:

- From: the organisation that sent the message (with a wide choice of formats);
- To: the organisation that should receive the message;
- Business Message Identifier: a unique identifier for this particular message instance, as defined by the sending application or system;
- Message Definition Identifier: the identity of the message definition, as published on the ISO 20022 website;
- Business Service: a choice of processing services or service levels;
- Creation Date: the creation date (and time) for the data in the BAH and the ISO 20022 message it refers to (unless the latter comes with a separate creation date with a specific business meaning);
- Copy Duplicate and Possible Duplicate: fields to aid the identification of duplicate data;
- Priority: the priority of the data within the message;
- Signature: the digital signature of the sending organisation;
- Related: information about other related message(s).

Version 2 (2019) offers in addition to the above list the following options:

- Business Processing Date: in case a different date than the creation date is needed for the receiver for processing, routing or prioritisation.
- Market Practice: reference to the market practice, its version and the respective issuer.
- More options for and adaptations to identification, address and contact information.

7. Is use of the BAH optional?

Yes. There are two types of choices as to whether to employ the BAH: firstly, when a new message set is developed; and secondly, when a community decides to implement existing ISO 20022 messages.

When a message set is developed, the submitter of the related business justification chooses whether the new message set is to be modelled for the use of the BAH or not. The choice made by the submitter is documented accordingly in the ISO 20022 message catalogue.

When a community decides to implement a set of ISO 20022 messages, they must agree between themselves whether to use the BAH to provide this data. This could be at the level of the entire implementation, or of message sets, or even at the level of individual messages. However, the benefit of the BAH is to provide data in a consistent way, as too many variations would reduce its usefulness.

8. In which domains and communities has the BAH been implemented?

Since the introduction of the BAH in 2010, it has been a common pattern that submitters of business justifications (BJs) requesting the modelling of new business processes and the development of new ISO 20022 message sets have foreseen the support of the BAH in their BJ requests.

The BAH has enjoyed support in business justifications across the range of ISO 20022 domains, be it in payments, securities, foreign exchange, trade services and cards and related retail financial services.

At the time of writing (May 2020), the following infrastructure initiatives and their related systems are expected to implement ISO 20022 message sets using the BAH:

- EURO1, the large-value payment system of EBA CLEARING
- TARGET2, the real-time gross settlement (RTGS) system owned and operated by the Eurosystem
- CHAPS (Clearing House Automated Payment System), the real-time gross settlement payment system used for sterling transactions in the United Kingdom
- CHIPS (Clearing House Interbank Payments System), a United States private clearing house for large-value transactions
- Fedwire, a real-time gross settlement funds transfer system operated by the United States Federal Reserve Banks
- Payments Canada, operating a payment clearing and settlement system in Canada
- FINplus, a global message-processing service of SWIFT, supporting multiple business processes in the payments and securities domain

- T2S (TARGET2-Securities), the European securities settlement engine of the European Central Bank (ECB)
- CHES replacement, the replacement of the current Australian equities clearing and settlement market infrastructure system for the Australian Securities Exchange (ASX)
- CFETS, the FX trading system of China Foreign Exchange Trade System for post-trade matching and confirmation process in the foreign exchange domain
- CLSNet, a new service proposed by CLS Bank supporting the bi-lateral netting of FX trades

Nevertheless for some message sets that date back to the time before the BAH was conceived, there are on-going considerations as to when the BAH should be introduced. The investment funds messages are a case in point.

9. Are there implementations of ISO 20022 without the BAH?

For any message sets that were published prior to the introduction of the BAH and in particular if they already enjoyed a wide-spread adoption in their communities before the BAH was conceived, the move to using the BAH occurs over a longer period of time, as it is more difficult to substantiate a valid business case for the amendment of all concerned message definitions and their implementations. A number of message sets in the payments domain are examples of this category of messages.

10. What if my community does not want to use the BAH?

A community may choose not to use the BAH when exchanging ISO 20022 messages. Any ISO 20022 message that is defined on the ISO 20022 website may be sent without the BAH. Implementers then have a range of possibilities.

In the case of ISO 20022 messages which are designed without duplicated BAH elements, implementers need to conceive a mechanism through which the required but missing non-duplicated business information can become available. They can use another header, such as one they have designed or that is provided by a third party, for instance, their network provider. In some cases, it may be required that a change to the ISO 20022 messages is submitted in order to request that the required but missing elements are added to the ISO 20022 message. This case is dealt with specifically in a later question.

In the case, where sufficient information may already be available within the ISO 20022 message definition itself, the implementers can proceed without implementing the BAH. This is typically the case if the ISO 20022 message was not designed from the outset for the use of the BAH.

11. What if I participate in multiple communities, some who use the BAH and some who do not?

In this case, you will need to build some intelligence into your application software to allow some messages to include the BAH, and others to be sent without it. It may be the case that certain organisations will always use the BAH, or it may be the case that certain functions or domains will use it, while others will not. The complexity depends on the implementation choices of the communities concerned. For example, the Target2Securities (T2S) community has decided to use the BAH, whereas some domestic payments communities were already implementing their messages when the BAH was introduced, and so do not yet use it. A member of both types of communities will need to be able to process business messages that contain the BAH and those that do not.

12. How can messages for use with the BAH be recognised?

All ISO 20022 messages can be used with the BAH.

However, some ISO 20022 messages were specifically modelled for use of the BAH from the outset. These messages do not contain any duplicates of BAH elements in their own message definitions. The message definitions modelled in this way are highlighted in the message catalogue on the ISO 20022 website with the sentence: "The message definitions below are intended for use with the Business Application Header."

13. Which fields might be duplicated in the BAH and in the body of the ISO 20022 message?

The most common fields are Business Message Identifier and the Creation Date. The Business Message Identifier is a critical field in many message flows, where a subsequent message needs to refer to a message that preceded it in the flow.

For implementer communities that need to consider how to deal with duplicated elements which are present both in the BAH and the ISO 20022 message the following principles can serve as guidelines. In the ISO 20022 message, such elements could be found in a common place at the top part of a message, referred to as group header in some ISO 20022 message definitions, or alternatively in any location within the message.

In case an element is present with identical definition in both the BAH and the ISO 20022 message and the element is mandatory in both places, the semantic equivalence implies that the elements must be populated in both places with identical content.

If, in this case, the element was optional in the BAH and mandatory in the ISO 20022 message, for the same reason the element should be populated in both places with identical content. Such practice serves to ensure smooth processing.

In any other case and in particular if an element is present in both places with identical semantics, (yet there are some variations between the BAH and the ISO 20022 message regarding element name, XML tag, data type, format, structure and so on) market practice should determine how to populate both elements for usage of BAH and ISO 20022 message within the applicable community.

<p>NOTE Market Practice should describe whether the value of an equivalent field is different. In this case it is best practice for the element in the BAH to take precedence.</p>

What happens if a field in the BAH is also in the body of the message? This can happen where a particular message definition is shared between communities that differ in their approach to the BAH, or where an existing message was designed to include fields that became part of the BAH when the BAH was later introduced. In these cases, the implementing communities need to agree (just as for any other field where flexibility is allowed by the ISO 20022 standard) how to carry the information (for example, a community could agree to only populate the field in the BAH, or to populate both fields with the same value). This type of information is typically specified in market practice specifications or in service specifications of the communities concerned.

14. If I want to submit an ISO 20022 message for registration, what do I need to do to cater for the BAH?

The BAH does not really change the process you will go through. Every field in your proposed ISO 20022 message will need to be agreed within your community as to how and where to place it. The message will also be validated by the relevant global body (the Standards Evaluation Group, or SEG).

You will be required to indicate in the Business Justification document whether the message is intended for use with or without a BAH. Even if it is your intention to use the message alongside a BAH, other communities (that have not built use of the BAH into their systems) may wish to adopt the new message and, as such, may request that some fields are present in the new message, even if those fields are duplicates of fields in the BAH.

However, in absence of any community that does not use the BAH, or otherwise said, if all known communities use the BAH, it is highly recommended not to duplicate BAH elements in the ISO 20022 messages. Without a known need, the duplication of BAH elements would unnecessarily introduce potential issues when the same element is available in two different places, i.e. in the BAH and in the ISO 20022 message.

Consequently, a respective market practice, an implementation guideline or some other recommendation would need to define how to process the information in the duplicated elements. This overhead goes against the aim of ISO 20022 to provide efficient and effective mechanisms for the automation of operational processes in the financial industry.

If unsure, or in case both the usage with and without BAH is expected, then the respective fields in the message should be defined as optional.

15. If there are existing ISO 20022 messages that contain fields that are also contained in the BAH, will they be removed?

As has been explained above, there are communities that have implemented ISO 20022 messages without the use of the BAH, and where the presence of key fields (such as the Business Message Identifier) within the ISO 20022 message definition is mandatory. In these communities, the removal of these fields from the message definition would result in a significant impact.

Like any other change to a message definition, this would require a change request to be approved by the global community (again, by the mechanism of validation by the relevant SEG). If the data fields were still required in some implementations of the message, then this approval will not be given.

16. If my community needs to add fields to the body of an existing ISO 20022 message that are the same as, or similar to, fields in the BAH, is that allowed?

It is possible to add fields to the ISO 20022 message definition, even if they are already present in the BAH. For example, a message that was originally proposed to be used exclusively in communities that had implemented the BAH might then be adopted by a community that was not using the BAH. This latter community may find it to be a lesser impact to add the necessary fields to the message (as optional fields) rather than change their implementation and start using the BAH.

Again, this would require a change request, which would be analysed by the relevant SEG. If the SEG were to accept that adding the fields to the message would represent an appropriate change for the message and the business case were strong enough, then the SEG would approve the change.

17. What is the purpose of the Signature element in the BAH and how can it be used?

A digital signature is a mathematical scheme for verifying the authenticity of digital messages. A valid digital signature, where the prerequisites are satisfied, gives a recipient sufficient confidence that the message was created by a known sender (authentication) and that the message was not altered in transit (integrity).

The optional Signature element of the BAH can be employed to contain the digital signature of the Business Entity authorised to sign the Business Message, i.e. the ISO 20022 Business Application Header and the ISO 20022 Message.

There is no support for signatures covering only a part of the business message.

The Signature must be structured as per the W3C XML Signatures specification and any additional constraints stated for the service and business area within which this BusinessMessage is exchanged. This requires that the creator of the Signature and all verifiers of that Signature agree about the way the Signature is structured.

The Message Usage Guide (MUG) of the BAH available on the ISO 20022 website provides a worked example of the use of the signature mechanism.

18. I have also heard of Batch or File Headers. How do they relate to the BAH?

The BAH is a header which is of semantic relevance. It contains a number of business elements, which are common to potentially all ISO 20022 message definitions, in particular such elements as the creation date of a message or its unique message identifier. Following the introduction of the BAH in 2010, it has indeed become common practice that message definitions do not repeat elements of the BAH in the ISO 20022 message, although this is also permitted.

In contrast, batch headers and file headers do not contain elements that have any semantic significance in common with the ISO 20022 messages that they carry. A batch is a way of grouping several messages together. Each batch would need a header to indicate the properties of the batch as a whole.

If the mechanism for grouping several messages is based on files, such headers can also be referred to as file headers.

Nevertheless, in case a mechanism for grouping ISO 20022 messages is used which foresees group or file headers, then each ISO 20022 message within the batch or file would typically have an accompanying Business Application Header, unless employed without the BAH.

As is the case with transport protocol headers, batch or file headers are not defined by the ISO 20022 standard.

19. Where can I find out more about the BAH?

As for all ISO 20022 messages, there is a Message Definition Guide (MDR) which provides details of the structure and definition of the BAH as well as the BAH elements.

Furthermore, following the initial creation by a wider ISO 20022 interest group of a Message Usage Guide (MUG) for the BAH, the ISO 20022 Technical Support Group (TSG) has assumed ownership for the MUG. As part of this responsibility, the TSG provides updates to the MUG over time in line with any maintenance and other evolutions of the BAH.

All these BAH resources can be found on the ISO 20022 website (www.iso20022.org) in the Catalogue of Messages.