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Message Level Response

PROFILE

DRAFT

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Document Summary

This profile describes the use of a message level response mechanism. Message level response may be used in combination with any BII profile. Some profiles mandate message level response for selected transactions. For most profile transactions message level response is optional.

In order for message level response to be useful, both communication partners must support the mechanism.

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1 Introduction

This profile is a deliverable of the CEN ISSS BII2 workshop.

The original CEN Workshop on **Business Interoperability Interfaces for public procurement in Europe** (CEN ISSS BII) was concluded in December 2009, and its results, including a set of profiles, were issued as **CWA 16073:2010**. The objective of the second phase of the workshop – CEN WS/BII2 – was to provide a framework for interoperability in pan-European electronic procurement transactions, expressed as a set of requirements and technical specifications. The requirements are input into UN/CEFACT and the specifications are compatible with UN/CEFACT in order to ensure global interoperability.

Based on user input the CEN WS/BII2 has issued a number of new profiles and reviewed and updated a number of the profiles published as part of CWA 16073:2010. One of the new profiles is the Message Level Response. It may be used in any business process where the validation of a received message needs to be confirmed.

1.1 CEN WS/BII2 profiles

A CEN WS/BII2 profile description is a technical specification describing

- the choreography of the business process covered, i.e. a detailed description of the way the business partners collaborate to play their respective roles and share responsibilities to achieve mutually agreed goals with the support of their respective information systems,
- the electronic business transactions exchanged as part of the business process, with their information requirements, and the sequence in which these transactions are exchanged,
- the business rules governing the execution of that business process, as well as any constraints on information elements used in the transaction data models

The profiles focus on the standardization on the organisational and semantics interoperability levels rather than on syntax or technical interoperability levels. Consequently the business transactions within a profile can be structured based on different message standards/syntax as long it can carry all the necessary information elements.

Although the profile descriptions and transaction data models provided by CEN WS/BII2 are neutral of syntax, the workshop also published specifications of how its data models may be mapped to defined syntaxes. This is done in order provide implementable specifications.

The main focus of the profile description and the associated transaction data models is to address generally expressed business requirements, applicable throughout the European market. Although the profile description is designed to meet generally expressed requirements, it is still the responsibility of the users to ensure that the actual business transactions exchanges meets all the legal, fiscal and commercial requirements relevant to their business.

BII profiles describe common business processes. Stating what business practices are “common” depends on regions and industries that may have their own practices and needs, as well as on work practices within individual companies. Describing what business processes are “common” is therefore a qualitative process. This section sets out to identify what business practices can be listed as “common” and should therefore be supported by the profile. The benchmark is that the common business process is a process that is used by a wide range of companies in different industries and regions or is generally recognized as being relevant for most companies. The method for collecting is through input and expert advice from workshop participants, through existing documentation and expert review.

Each document acts as carrier of information between a seller and a buyer. Some of this information is directly related to its core function but additionally and frequently contains information that is used for related business processes. The nature of which and details depend on the industry and bilateral business relations.

In BII profiles, requirements of the information content of the documents are related to the business process in which the documents are exchanged. The business process in scope of the profile is identified in section 2. In section 3, the business requirements, taken into account, are listed, both on process level and on

document/transaction level. In section 4, these requirements are modelled into UML activity diagrams and into Transaction Information Requirement models. Additional Transaction Business Rules are included in section 4 as well.

The requirement models are syntax neutral. The mapping of the models to available syntaxes is outside the scope of the profiles, but is referenced to in section 5.

1.2 Implementation, conformance and customization

CEN WS/BII2 profiles define the core functionality that is required in order to achieve interoperability for the business processes that are covered. Parties, claiming conformance to a CEN WS/BII2 profile must be capable of:

- Processing all non-optional transactions that are defined in the profile
- Sending all mandatory elements within the transactions
- Processing all elements within the transactions they receive

Parties may agree bilaterally or within certain communities to extend the core set of information elements, or to adapt their cardinality. This extension mechanism is described in the BII Technical Guideline: BII conformance and customization.

In order to implement the profile, the transactions are to be represented in some syntax. Syntax representation is outside the scope of this profile, however, the mapping of the profile transactions to UBL 2.0 and to UN/CEFACT is described in section 5 of this profile. In section 5, reference is made to technical documents such as XML schemas, Schematron files and example messages to support technical implementation.

Implementations of this profile may be validated by means of tools and supporting material, as described in the BII Technical Guideline: BII implementation and use of validation artefacts. More background information and support material can be found on the CEN WS/BII2 website http://www.cenbii.eu/.

2 Business environment

2.1 Introduction

A Messaging Level Response message can be used in the choreography of the exchange of a business document to improve reliability by allowing a receiver of a business document to inform the sender about the results of receivers validations and, in case of negative results, to inform the sender about the nature of the errors as well as their details. They may allow the sender of the document to take appropriate action.

The specification in this document identifies requirements and content for a Messaging Level Response message. Those can, and will, later on be mapped into an appropriate syntax standard but such a mapping is not within scope of this document.

2.1.1 A message level response

Through the start to end flow of a message exchange; from the creation of an electronic message, down the transport line that goes through one or more transport networks to the designated receiver and all way through the eventual processing of the message content, there may be need to give responses to the relevant parties up-line about the status or results of the actions that the message goes through. These responses are of different nature but for the purpose of this document they can be divided into the following main groups.

Transport acknowledgements
These are messages that are exchanged within the transport network(s) to inform about the process of carrying a message down the transport line. These responses may inform someone up-line that the delivery to a given point was successful or not and may contain details about issues that are relevant such as why a delivery was not successful. The key nature of these responses is that they do not in any way act on the content of the payload that is being transported. These response messages are commonly called “acks”.

Message Level Responses
When a message has reached a given point in the transport line its content may be validated according to agreed specifications that may be both syntactical and semantic. The outcome of these validations may be reported to a relevant party up-line, informing him whether the validation was successful or not as well as giving some details. An example could be that an order message that is received is rejected because it is missing a closing tag (syntax error) or because its amounts don’t add up according to what is specified in the relevant syntax specification. A key nature of these messages is that they report on the message content on the basis of the technical specifications that apply.

Business Level Responses
A message that has been received and accepted for processing may call for an action on the receiver’s behalf. That receiver’s action may need to be reported back up-line to a relevant party. An example is that a technically correct order may be received but the receiver decides to reject the order for any business reason such as out-of-stock situation, expired contract etc. The key nature of these responses is that they report a business decision that is made on the message instance received.

This specification is only concerned with the Message Level Responses.

2.2 Objectives

1. The message level response mechanism gives more reliability in the exchange of electronic business documents, especially if the transport channel is less reliable.
2. The message level response enables the sender of an electronic business document to take appropriate action, when the receiver has detected errors or warnings while processing the document.

2.3 Scope

This profile supports detailed information on consumption of services in addition to invoice or a credit note.

The intended scope for this profile includes:

- B2B and B2G
- Common business processes related to accounting, approval and statistical analysis.
- Industry specific reporting processes like electricity, gas, water and telephone services.
- Regional procurement within EU and EEA. The profile is expected to be applicable to other regions following a review of regional requirements.

The transactions, specified in this profile are intended to be exchanged between the application systems of customers and suppliers. This means that it is expected that customers and suppliers have connected their systems to the internet, and that they have middleware in place to enable them to send and receive the transactions in a secure way, using an agreed syntax.

3 Requirements

3.1 Process requirements

A message level response document should support the following requirements.

- The message and its use should not be linked to any specific infrastructure implementation.
- If supported by both sender and receiver, the receiver MUST send a message level response whenever he detects errors in the business document that prevents him from processing it.
- If supported by both sender and receiver, the receiver SHOULD send a message level response whenever he detects warnings in the business document that do not prevents him from processing it, but that may violate agreed business rules.
- If supported by both sender and receiver, the receiver MAY send a message level response when the business document received was processed successfully.
- Sender and receiver MAY agree that message level responses are always exchanged for selected transactions.
- BII Business profiles MAY mandate the use of message level responses for selected transactions.
- The response message should convey either an “accept” or a “reject” of the instance received. If accepted, no errors should be reported. If rejected, the reason may be stated.
- A rejection implies that the instance will not be further processed by the receiver.
- The response message can be used by its sender to report a business level rejection of a previously received message that is conformant to BII profiles.
- The specification assumes that any service provider acts on behalf of either the sender or the receiver.
- The response message should provide for coded responses in order to facilitation automation in processing the message response.

Out of scope requirements.

- The possibility for using the message to report on routing is not within the initial scope for this deliverable.

3.2 Information requirements

3.2.1 Message Level Response transaction business requirements

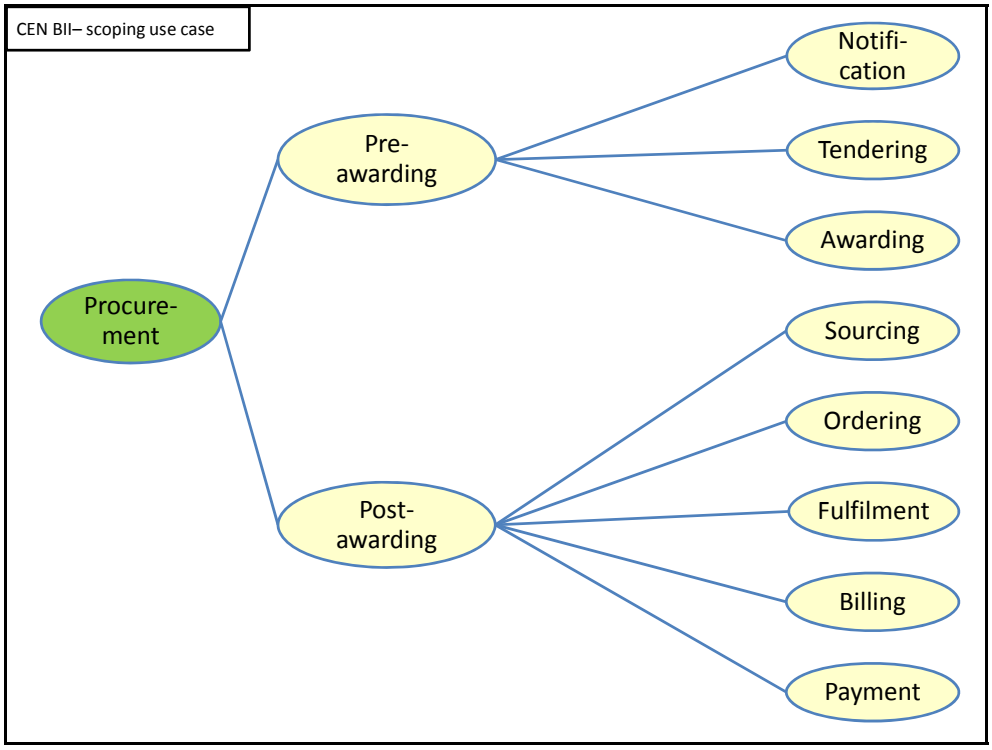
ID	Requirement
tbr71-001	It must be possible to give the response message a unique identifier. The identifier is issued by the sender and can be used to uniquely identify a message instance.
tbr71-002	It must be possible to state the date and time when the response message is issued. The date should always be given but the time (hours, minutes and seconds) should be optional to use.
tbr71-003	It must be possible to state a free text note. Used to inform the receiver about information that is not explicitly given in any dedicated structure. The information is meant to be manually read/assessed by the receiver.
tbr71-004	It must be possible to specify the Party sending the response.
tbr71-005	It must be possible to specify the Party receiving the response.

tbr71-006	It must be possible to specify the Response to at previously received message referring to the document including the document type and document identifier and version.
tbr71-007	It must be possible to give the response as a code. A response code list is required in order to facilitate automated process of message responses. As it is noted that it may not be feasible to provide a single code list with response codes for all different processes/documents and applicable types errors an actual code list is not provided in this document. It is expected that such a code list would typically include values such as: “syntax violation”, “business rule violation”.
tbr71-008	It must be possible to give an optional description possibly in several languages.
tbr71-009	It must be possible to give response for one or more lines in the previously received document. This includes response code and response description.
tbr71-010	A response document must be able to clearly indicate whether the received document was accepted or not.
tbr71-011	It must be possible to sign the response document in order to provide for non-repudiation.
tbr71-012	It must be possible to specify the type of acceptation and/or rejection of the document (e.g. Technical Accept, TechnicalReject, etc.)
tbr71-013	The message should allow the identification of more than one error.
tbr71-014	The message should allow for XPath statements to indicate the location of the errors in the received instance.

4 Profile detailed description

4.1 Business processes in scope

Procurement is a complex domain with several key processes, some of which are illustrated in the following figure.



Message level response may be used in any of the procurement processes.

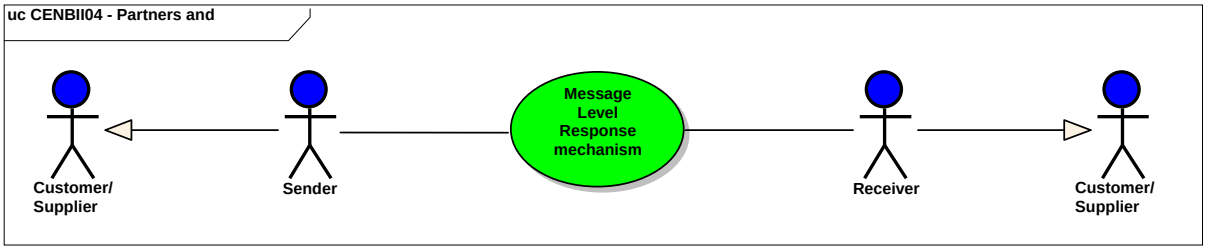
4.2 Roles involved

The following business partners participate in this profile, acting in the roles as defined below.

Business partners	Description
Customer	The customer is the legal person or organization who is in demand of a product or service. Examples of customer roles: buyer, consignee, debtor, contracting authority.
Supplier	The supplier is the legal person or organization who provides a product or service. Examples of supplier roles: seller, consignor, creditor, economic operator.

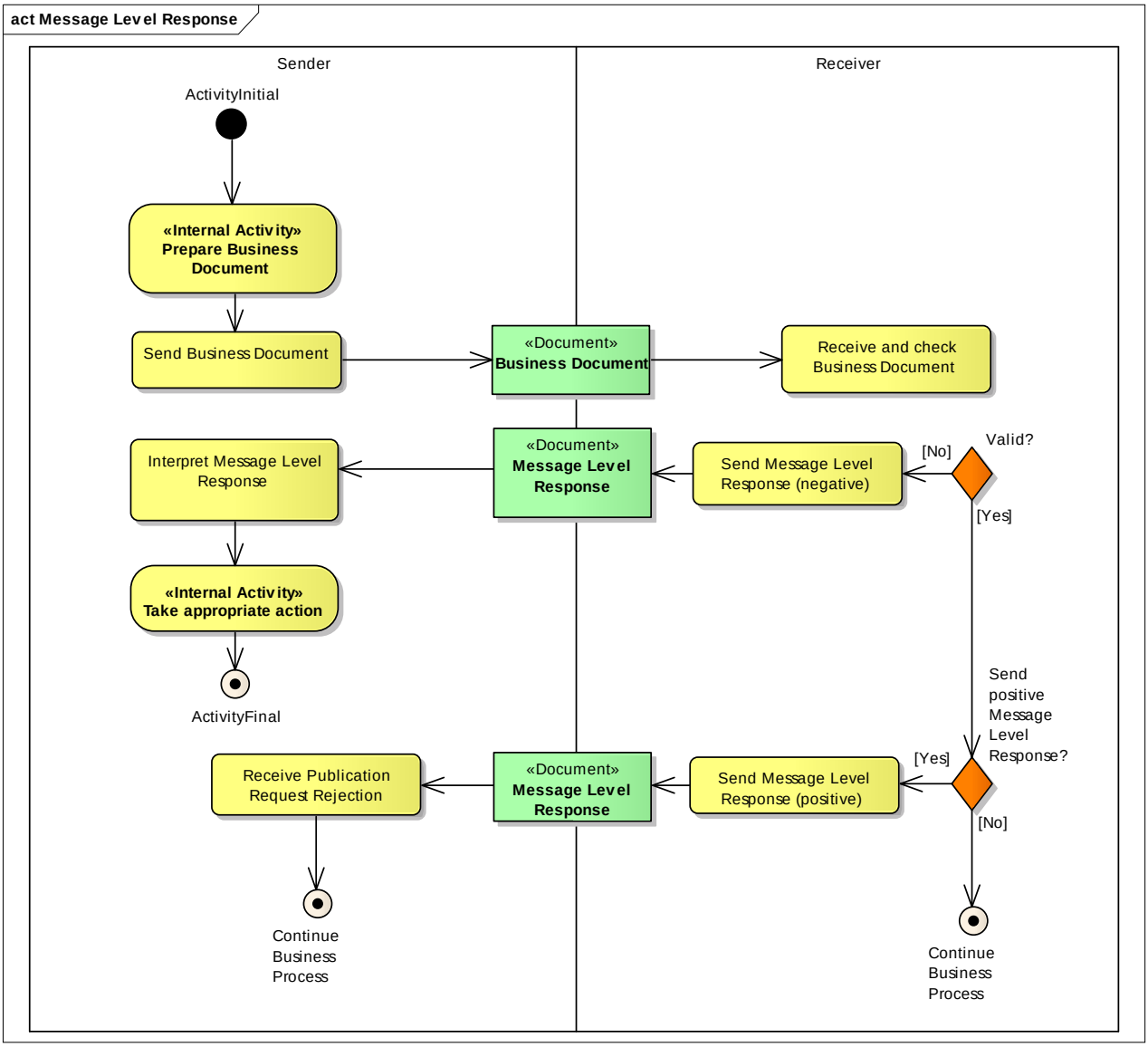
Party	Role/actor	Description
Customer/Supplier	Sender	The party, sending an electronic business document to another party.
Customer/Supplier	Receiver	The party, an electronic business document was addressed to, and who is supposed to process that business document.

The following diagram links the business processes to the roles performed by the Business Partners.



4.3 Message Level Response Business Process

The following diagram shows the choreography of the Message Level Response mechanism.



Categories	Description and Values
Description	A receiver of a faulty Business Document sends a Message Level Response if he supports the Message Level Response profile. A receiver of a correct Business Document sends a Message Level Response if: a. Message Level responding is mandated for the business transaction b. He decides to do so at his own discretion c. He agreed to do so with the Business Document Sender.
Pre-conditions	(1) A faulty Business Document was received by the Receiver (2) A correct Business Document was received by the Receiver

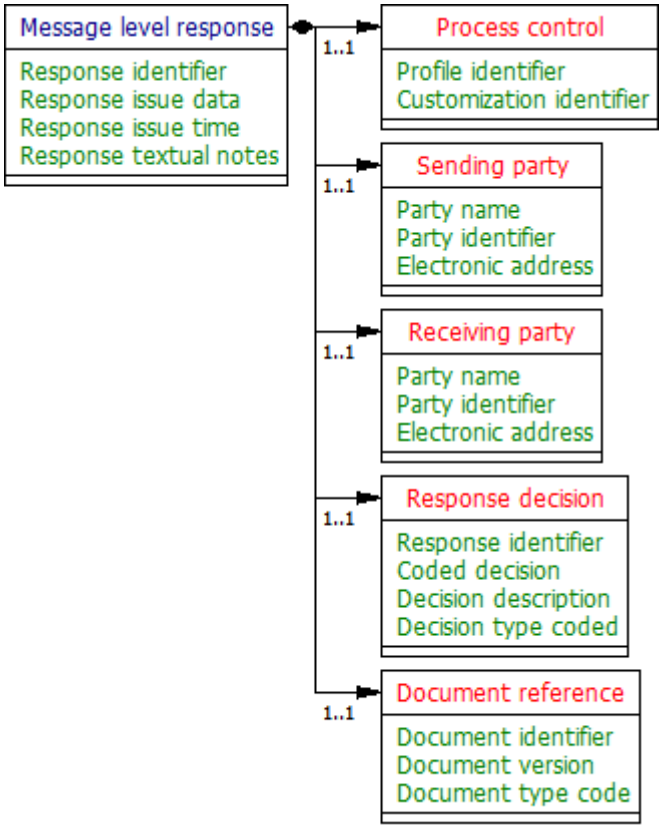
Categories	Description and Values
Post-conditions	(1) A negative Message Level Response was sent to the sender of the business document and the sender takes appropriate actions (2) A positive Message Level Response was sent to the sender of the business document and the business process continues (3) No Message Level Response was sent to the sender of the business document and the business process continues

4.4 Transaction Information requirements

4.4.1 Message Level Response transaction

Categories	Description and Values
Identifier	BiiTrns071
Description	A response to a previously received message, confirming the reception, or reporting issues with regard to the received message.
Partner Types	Customer Supplier
Authorized Roles	Sender Receiver
Legal Implications	None

4.4.1.1 Message Level Response Information Requirements Model



4.4.1.2 Message Level Response Information Requirements

InfRqID	Crd	Tree and Business term	Usage	Data Type	ReqID	Note
		Message level response	When a message has reached a given point in the transport line its content may be validated according to agreed specifications that may be both syntactical and semantic. The outcome of these validations may be reported to a relevant party up-line, informing him whether the validation was successful or not as well as giving some details. An example could be that an order message that is received is rejected because it is missing a closing tag (syntax error) or because its amounts don't add up according to what is specified in the relevant syntax specification. A key nature of these messages is that they report on the message content on the basis of the technical specifications that apply.			
tir71-001	1..1	Response identifier	An transaction instance must contain an identifier. The identifier enables positive referencing the document instance for various purposes including referencing between transactions that are part of the same process.	BiiDT::Undefined	RSP-1	
tir71-002	1..1	Response issue data	The date on which the transaction instance was issued.	BiiDT::Date	RSP-2	
tir71-003	0..1	Response issue time	The time at which the transaction instance was issued.	BiiDT::Time	RSP-2	
tir71-004	0..1	Response textual notes	Used to make any comments or instructions relevant to the response, including the date that the reported decision becomes effective.	BiiDT::Text	RSP-3	
	1..1	Process control	Information about the specification that apply to the transaction.	CENBII common structures::Process control		
tir71-005	1..1	Profile identifier	Identifies the BII profile or business process context in which the transaction appears.	BiiDT::Code	tbr00-001 Arch	
tir71-006	1..1	Customization identifier	Identifies the specification of content and rules that apply to the transaction.	BiiDT::Code	tbr00-002 Arch	
1	1..1	Sending party	The party sending the response.	Main::Party		
tir71-007	0..1	Party name	The name of the party sending the response.	BiiDT::Text	RSP-4	
tir71-008	0..1	Party identifier	It should be possible to specify the identifier or identifiers for the party.	BiiDT::Undefined	RSP-4	
tir71-009	0..1	Electronic address	A response may contain the party electronic address. The address can be of any format and the format should be identified in the message.	BiiDT::Identifier	Arch	
	1..1	Receiving party	The party receiving the response.	Main::Party		
tir71-010	0..1	Party name	The name of the party receiving the response.	BiiDT::Text	RSP-5	
tir71-011	0..1	Party identifier	It should be possible to specify the identifier or identifiers for the party.	BiiDT::Undefined	RSP-5	
tir71-012	0..1	Electronic address	A response may contain the party electronic address. The address can be of any format and the format should be identified in the message.	BiiDT::Identifier	Arch	
	1..1	Response decision	The business decisions that is reported from the sending party to the receiving party.	Main::Decision		
tir71-013	0..1	Response identifier	Identifies the section (or line) of the document to which the response applies.	BiiDT::Undefined	RSP-9	
tir71-014	0..1	Coded decision	A code for the description of the response to the transaction document.	BiiDT::Code	RSP-10	

InfRqID	Crd	Tree and Business term	Usage	Data Type	ReqID	Note
			AP= Accepted, RE = Rejected, UN/Cefact 4343 Response type code			
tir71-015	0..1	Decision description	The description of the response to the transaction document.	BiiDT::Text	RSP-8	
tir71-016	0..1	Decision type coded	A codified verison of the decision description that describes the nature of the decision e.g. Syntax violation, Business rule violation, etc.	BiiDT::Code	RSP-7	
	1..1	Document reference	References to the busines document that the reported decision applies.	Main::Reference		
tir71-018	0..1	Document identifier	Identifies the document being referred to.	BiiDT::Undefined	RSP-6	
tir71-019	0..1	Document version	The version of the document that has been identified with the document identifier.	BiiDT::Undefined	RSP-6	
tir71-020	0..1	Document type code	The type of the document being referred to, expressed as a code.	BiiDT::Code		

4.4.1.3 Message Level Response Business Rules

Facts

RuleID	rulenote	target	errorlevel	source	ReqID
BIIRULE-T71-R007	A message level response sending party MUST contain the full name or an identifier	Sending Party	fatal	T71	
BIIRULE-T71-R008	A message level response receiving party MUST contain the full name or an identifier	Receiving Party	fatal	T71	

Integrity constraints

RuleID	rulenote	target	errorlevel	source	ReqID
BIIRULE-T71-R001	A message level response MUST have a profile identifier	message level response	fatal	T71	
BIIRULE-T71-R002	A message level response MUST have a customization identifier	message level response	fatal	T71	
BIIRULE-T71-R003	A message level response MUST contain the date of issue	message level response	fatal	T71	Tbr71-002
BIIRULE-T71-R004	A message level response MUST contain the response identifier	message level response	fatal	T71	Tbr71-001
BIIRULE-T71-R005	The party sending the message level response MUST be specified	message level response	fatal	T71	Tbr71-004
BIIRULE-T71-R006	The party receiving the message level response MUST be specified	message level response	fatal	T71	Tbr71-005

BIIRULE-T71-R009	A message level response MUST contain a response	message level response	fatal	T71	Tbr71-006
BIIRULE-T71-R010	A message level response MUST contain a document reference	message level response	fatal	T71	Tbr71-006
BIIRULE-T71-R011	A response MUST contain an identifier	Response	fatal	T71	Tbr71-006
BIIRULE-T71-R012	A document reference MUST contain an identifier and a document type	Document reference	fatal	T71	Tbr71-006

5 Implementation

The following documents define the binding of the transactions to various syntaxes:

Transaction	Syntax	Binding document
BiiTrns071	UBL 2.1	BiiTrns71-SB-UBL.rtf

These documents have been annexed to this profile.

Validation tools, such as Schematron files, are available on the BII2 web site: http://www.cenbii.eu/

6 References

6.1 General references relevant for all BII profiles

External documents

- UN/CEFACT Modelling Methodology (available at http://www.untmg.org/specifications/)
- UML (Unified Modelling Language), version 2.0 (available at http://www.omg.org/spec/UML/2.0/)

Related publications from CEN/ISSS WS/BII:

- CEN CWA 16073:2010 – BII1 Profiles and deliverables
- CEN CWA xxxx0: BII2 Architecture
- CEN CWA xxxx1, BII2 eNotification profile
- CEN CWA xxxx2, BII2 eTendering profiles
- CEN CWA xxxx3, BII2 eCatalogue profiles

BII2 web site: http://www.cenbii.eu/