



**UN/CEFACT**

SIMPLE, TRANSPARENT AND EFFECTIVE PROCESSES  
FOR GLOBAL BUSINESS

**BUSINESS REQUIREMENTS SPECIFICATION  
(BRS)**

**Business Domain: Agriculture**

**Business process : Animal traceability data exchange**

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**Title: Animal traceability data exchange**

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## Document Change history log

Date of change	Version	Paragraphs changed	Summary of changes
October 2013	0.1		Creation
March 2014	0.2	1, 3, 4.1, 5.1, 5.2	Change of scope
March 2014	0.3	all	Update results workshop 26 March
April 2014	0.4	Chapter 5	Update diagrams, add ABIE tables.
Aril 2014	0.5	All	Update chapter 5 and comments from Geneva forum discussion processed.
Mai 2014	0.6	All	Update
2014 June 2	0.7	AEE	Schemas update
September 2014	0.8		completed
October 2014	0.9		Update schemas, update level 0
November 2014	0.92		Update comments from New Dehli session
December 2014	0.93		Approved by project. Final version. For ODP 5, public review

# 1 Preamble

The project 'Animal Traceability Data Exchange' has very broad scope. In this project we will start sub projects dedicated to a manageable scope.

At the first stage, we will focus on the movements of animals or groups of animals from one location to another and in a second stage we will focus on the movements of animal products.

The present document describes traceability processes for live animals, groups of animals and fish during transport within a country or across borders.

The species concerned are: porcine, ovine, caprine, bovine, equine, birds and fish.

The business case supported by these processes is:

- All the business parties involved in the chain record T&T (track and trace) information on animals and animal movements in a Traceability system
- A T&T requesting party (business or government) has a question about an animal, group of animals, transport, location or responsible party and requires an immediate answer.
- The T&T system retrieves the required information and sends it to the requesting party

The term "animal" designates the individual animal (e.g. cow) but also the group of animals (e.g. poultry, birds, pigs, fish.).

For the purpose of this document, the definition of traceability is to exchange information about locations and events of individual or groups of animals during all stages of their life regarding to.

(OIE (World Organization for Animal Health): definition about animal traceability: Animal traceability is the ability to follow an animal or a group of animals during all the stages of its life.)

Traceability issues can be defined in 3 levels:

1. Identify the responsible businesspartners for the particular tracking and tracing questions for the specified animal(s) or group of animals.
2. Questions about animals, locations, transports and responsible parties.
3. Questions about breeding, animal holding processes and events, health and sanitary issues, drugs (extend the work on 'Livestock Live Record' to other animal species).

The outputs will be the harmonized XML schemas to support the business process.

The structure of this document is based on the structure of the UN/CEFACT Business Requirements Specification (BRS) document reference.

## 2 References

- UN/CEFACT Modelling Methodology User Guide (CEFACT/TMG/N093)
- UN/CEFACT Business Requirement Specification Document Template (CEFACT/ICG/005)
- UN/CEFACT E-CERT BRS
- UN/CEFACT CRIE cattle registration and information exchange BRS
- Previous work on Livestock Life Record draft data model
- ISO / IEC 19987
- UN/CEFACT FLUX Fisheries Language for Universal eXchange P1000-x BRS
- ISO 11784 international standards that regulate the radio frequency identification (RFID) of animals
- ISO 3166 - ISO Country codes used in identification of animals

## 3 Objective

The objective of this document is to standardize the Business Processes, the Business Transactions and the Information Entities of the technical description and information of animal traceability data exchange.

The Business Process is the detailed description of the way partners intend to play their respective role, establish business relationship and share responsibilities to interact efficiently with the support of their respective information system.

The business documents are composed of Business Information Entities (BIE), which when available, are taken from the library of reusable business information entities and when not found, are proposed as new Business Information Entities. The contents of the business documents and the Business Information Entities are presented using class diagrams.

## 4 Scope

### 4.1 Description

This section describes the extent and limits of the business process within the information chain being described in this document.

Categories	Description and Values
<b>Business Process</b>	Animal traceability data exchange
<b>Product Classification</b>	Animal traceability data
<b>Industry Classification</b>	Agricultural and fishery sector
<b>Geopolitical</b>	Global
<b>Official Constraint</b>	European Regulations National regulation Local applicable regulation
<b>Business Process Role</b>	Exchange of traceability data
<b>Supporting Role</b>	None
<b>System Capabilities</b>	Agreed level of security to protect data integrity Network of connected T&T databases System of authorizations and keys for retrieving T&T information by T&T requesting parties

### 4.2 Context

Important is:

- all species can be tracked and traced using a common model
- the track & trace process for individual animals and for batches of animals is based on the same model
- for identifying the involved parties for the specified animals a generic standard supporting tracking and tracing of commodities of all kinds can be used.

## 5 Business Requirements Elaboration

### 5.1 Business Requirements List

For T&T purposes a network of public and / or private databases could be used, in which the animal movement data can be registered, data can be searched and data can be retrieved. This data is not public information. The businesspartners remain in control over the access to the data.

The traceability data could also be sent between parties without using such data bases.

Number	Business Requirement Statement
0.	Track and trace data messages must use existing standards and methods allowing to provide information
1.	An individual animal or batch of animals (indicator (e.g. tag) number(s), transports, locations, responsible parties)
2.	A transport event (period, consignment, shipment, transport means, equipment, locations, animals involved, indicator (e.g. tag) number(s), responsible parties)
3.	A location (period, animals, departure and destination of animals, dates of arrivals and departures, responsible parties)
4.	Responsible party (period, locations, animals)
5.	Interoperability between different systems
6.	Independent of animal species and national and / or geographical locations

Animal traceability data can be exchanged on a regular basis, e.g. for consumer information. Animal traceability data can also be exchanged on an ad hoc basis, e.g. in case of animal disease incidents.

## 5.2 Definitions of Business Terms

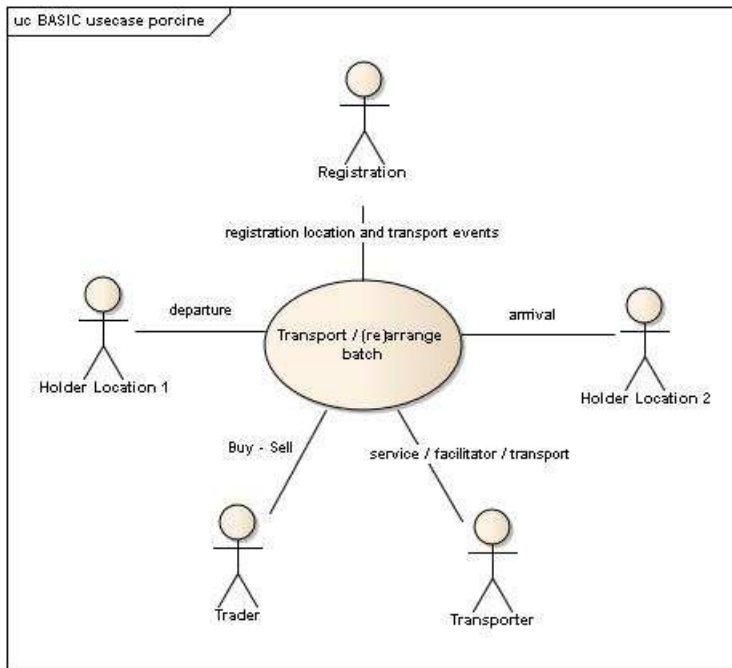
<b>Tracking and tracing requesting party</b>	Person, organization or authority needing tracking and tracing information on animal(s) for their business processes, or following an incident or crises with respect to animal health, food safety or human health. In the event that the traceability system is regulated, the traceability data could also be used to verify compliance and enforce laws.
<b>Registration</b>	Administration of data according to a specific set of criteria. (By example animal registrations and transport registration)
<b>Event registration</b>	An administration of event identifying information, which can be searched for T&T requests.
<b>Batch of animals</b>	An identified group of not individually identified live or dead animals
<b>Transport</b>	Movement of animal(s) or good(s) from one location to another.
<b>Traceability</b>	<p>The definition of traceability is to retrieve information about locations and events, what happened to the animal or the group of animals or animal products and when did it occurs.</p> <p>The OIE (World Organization for Animal Health) defines: definition about animal traceability: Animal traceability is the ability to follow an animal or a group of animals during all the stages of its life.)</p> <p>Traceability information should give an answer on the Why, What, Where and When questions about a (group of) animal(s) or an animal related event.</p>
<b>Location</b>	An identified geographical point or area where an event related to animal traceability occurs.
<b>Party</b>	An identified person, organization or authority.



## 5.3 Business Requirements View

### 5.3.1 Use case description

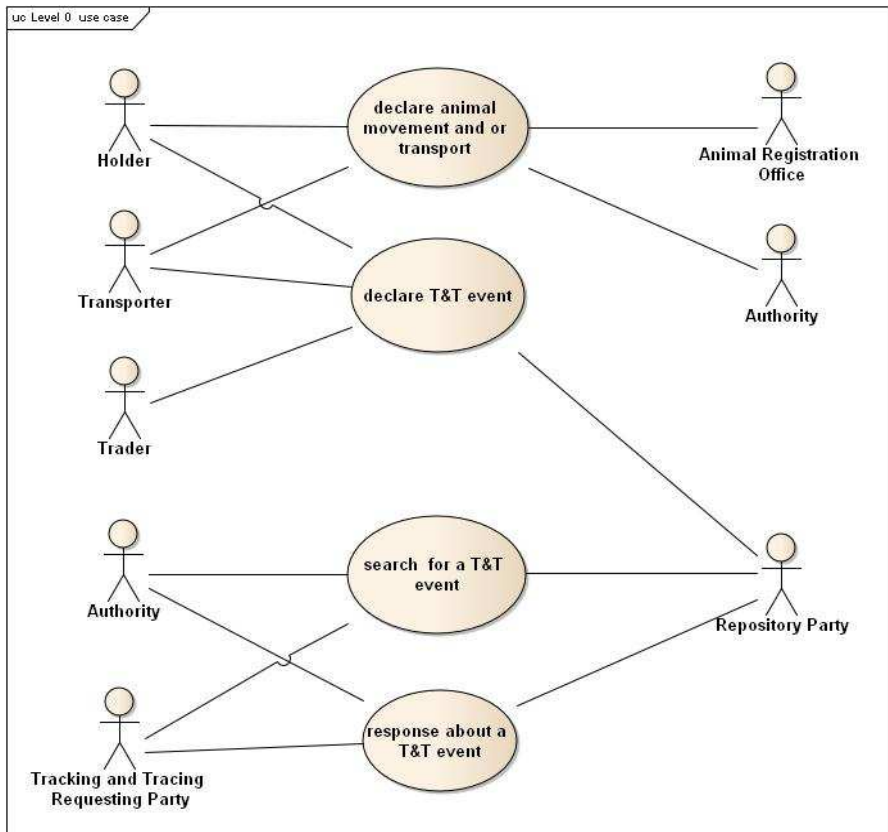
For understanding the business of animal holding and transport the first use case (figure 1) shows the relation between the different stakeholders in animal holding and animal transportation.



**Figure 1 Basic use case animal holding and transport**

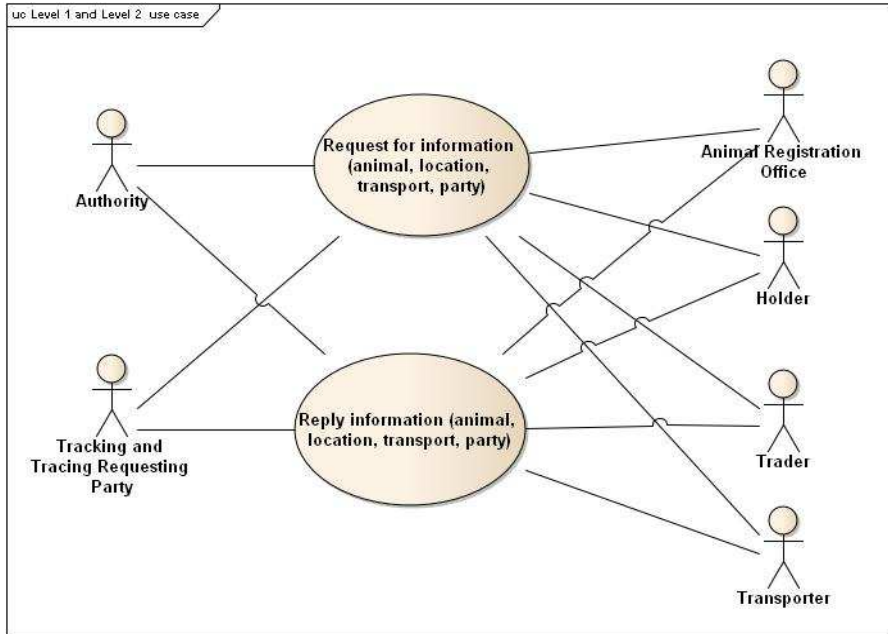
The real use case in a tracking and tracing event is the one below (figure 2), where a specific party needs T&T information about an animal, a group of animals, a transport, a location or the responsible party.

In this Level 0 (fig 2), one use cases is identified about the declaration of animal data and transport at the responsible office. A second use case is identified about the declaration of these events in a tracking and tracing repository. The third and fourth use cases deal with the search and request in the tracking and tracing repository about animals, locations, transport and responsible parties.



**Figure 2 Level 0 use case tracking and tracing event**

The Level 1 and Level 2 (fig 3) use cases are about the information exchanged between the business partners, identified with the help of the T&T repository. In Level 1 and Level 2 the information exchange is based on a request and the response process. Level 1 is limited to basic data about animal, location, transport or responsible party. At Level 2 additional data about these issues can be exchanged.



**Figure 3 Level 1 and 2 use case tracking and tracing event**

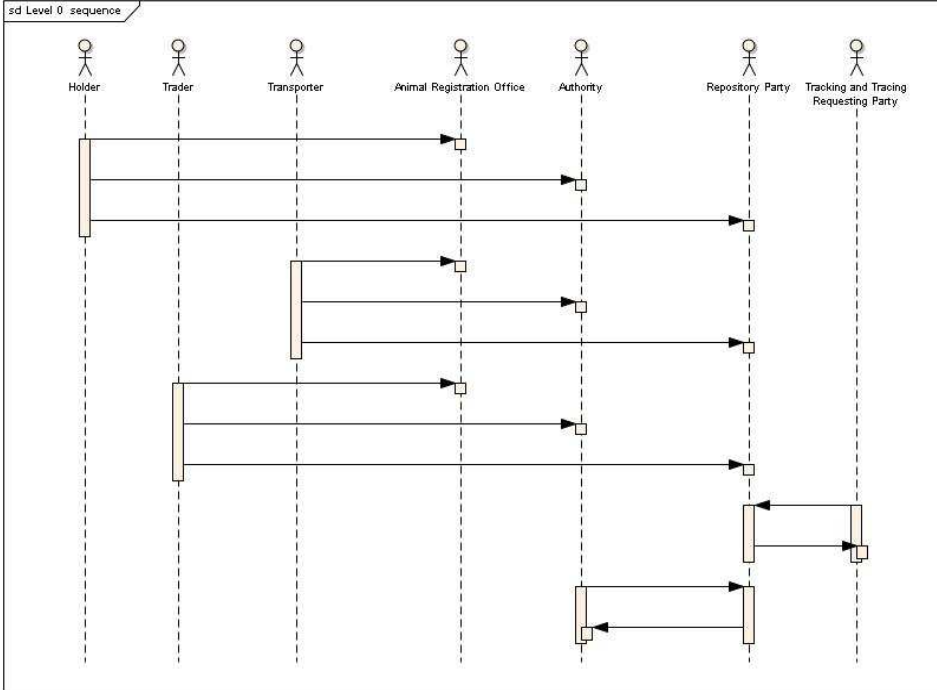
The diagrams of figure 2 and 3 illustrate the use cases to perform three business steps:

- Declare the animal holding / transport events by the business partners
- The search for the specified business partners by the T&T party
- The response from the T&T repository system.
- Two sub-use cases are identified: Animal data and transport data to be exchanged between a registration party (national registration, producer organization, cooperatives, etc.) and a "tracing and tracking" requesting party. The main data comprise the date and time of the event, animal data, transport data, location and involved parties.

Actually, the needs are the same for every species on traceability of animals.

**Sequence diagrams**

At Level 0 the sequence diagram for declaring the animal transport events, the declaration to the T&T repository and the search/request and reply to the repository in are shown in figure 4.



**Figure 4 Level 0. sequence diagram tracking and tracing**

At Level 1 and Level 2 the sequence is shown in figure 5.

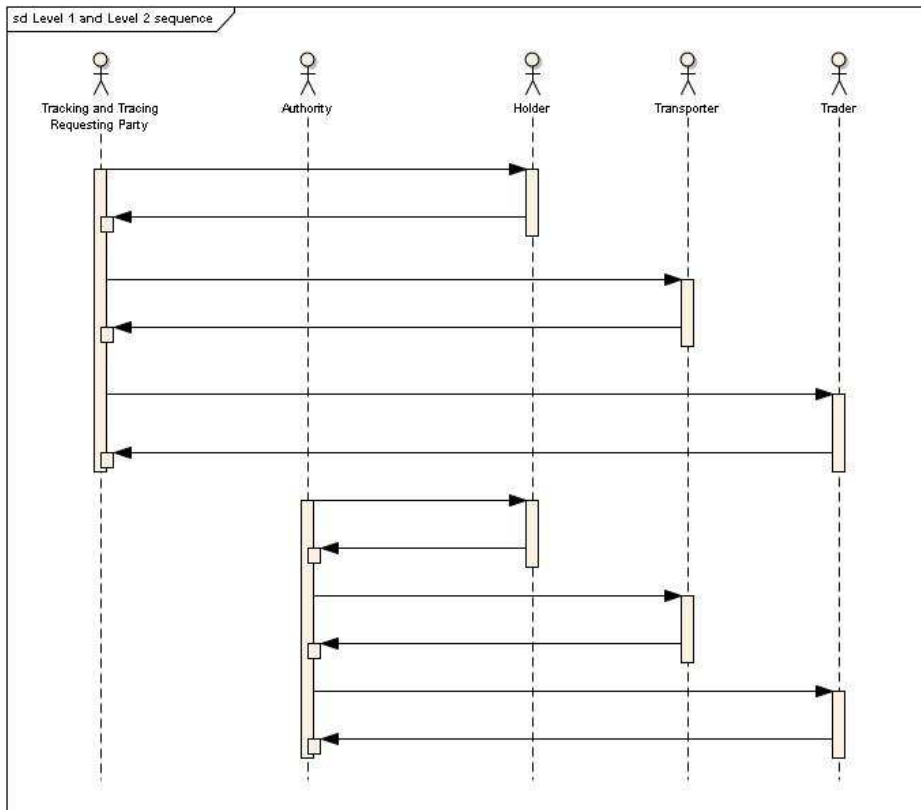


Figure 5. Level 1 and Level 2 sequence diagram tracking and tracing

The identification of the responsible holder, trader or transporter is done at Level 0.

Level 1 and Level 2 include only a request and a response. Based on the response another iteration of a request and response can be performed.

### 5.3.2 Business Partner View-Participants and Stakeholders

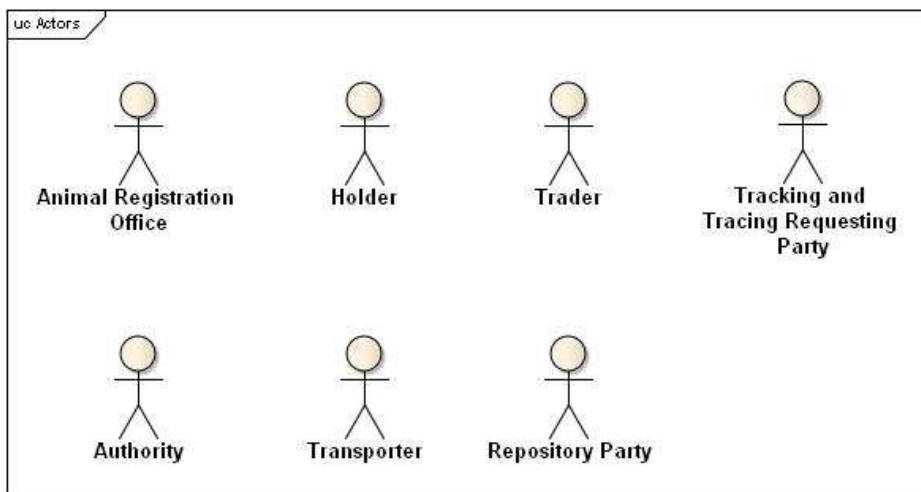


Figure 6. the business parties

### 5.3.1 Business Entity View- Entity States, Lifecycle and Conceptual Model

The class diagram describes all the necessary classes of information for a flow of information exchange for animal traceability exchange

<b>Business process name</b>	Animal traceability and transport data exchange
<b>Identifier</b>	
<b>Actors</b>	Tracking and tracing requesting party Animal Registration office Holder Trader Transporter Repository party Authorities
<b>Description</b>	The tracking and tracing party sends a request for information on animal(s), location(s), transport(s) and responsible parties to a T&T system. The system retrieves the required information from the network and sends a message with the required information.
<b>Pre-condition</b>	A network of related databases is in place A system for authorizations is in place Business parties control access to their data
<b>Post-conditions</b>	<b>Success:</b> All the relevant information is retrieved out of the T&T system and sent to the T&T requesting party <b>Failure:</b> Not all the relevant information can be retrieved (databases not updated, authorisations not given, no interoperability in the T&T system, database not 24*7 available,...)
<b>Scenarios</b>	Providing traceability and transport data information
<b>Remarks</b>	

This use case helps reducing risks (human and animal health) and economic losses in case of animal diseases or other irregularities.

## 5.4 The activity diagrams

The activity diagrams helps identifying all the significant information flows between the business partners in the tracking and tracing processes.

### 5.4.1 Activity Diagram at Level 0 for search and request T&T information

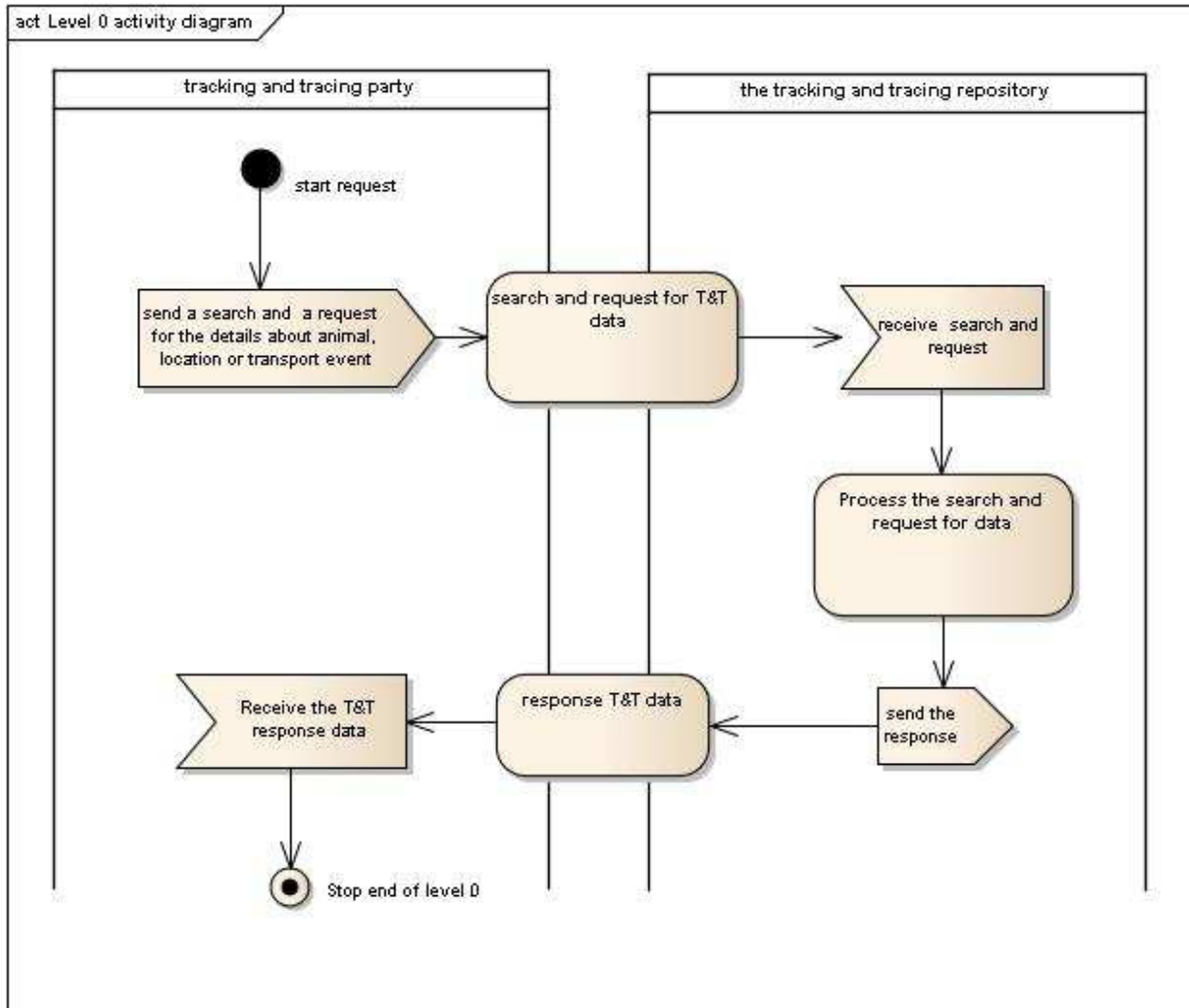


Figure 7 activity diagram for Level 0

### 5.4.2 Activity Diagram at Level 1 and Level 2 for the request and response T&T data about animal, location, transport or responsible party.

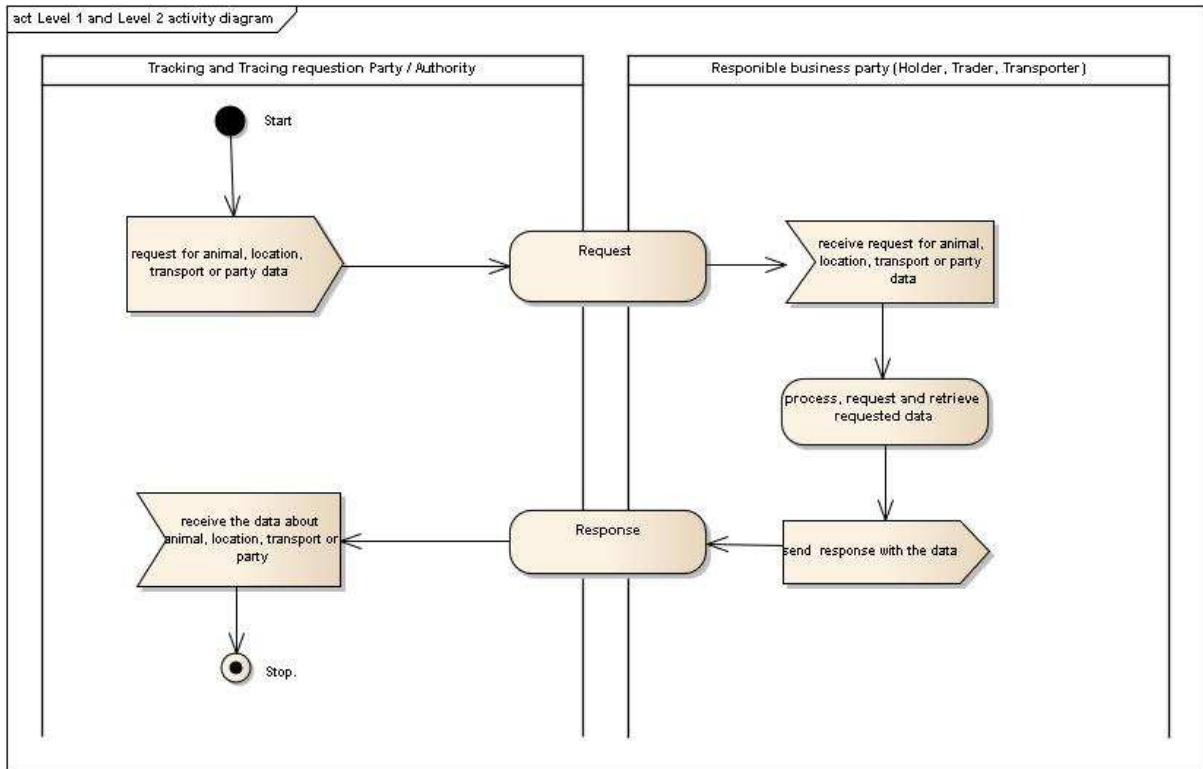


Figure 8 Activity diagram for Level 1 and Level 2

## 5.5 Information model definition (class diagram)

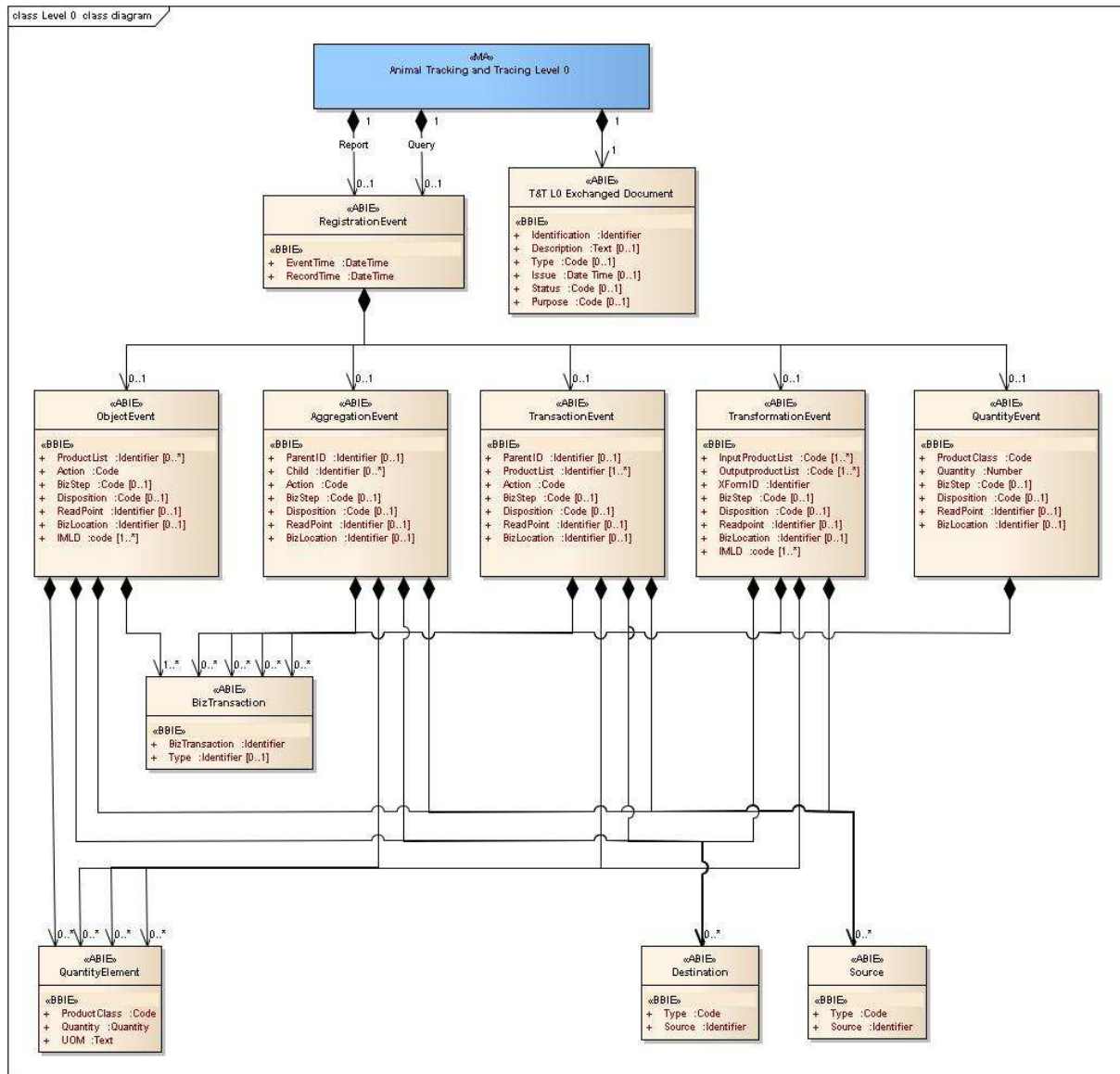


Figure9 class diagram for Level 0.

Fig 9 Level 0 provides an overview for the query and report information exchange business information entities. These messages are defined for declaring events to a repository, and for basic search and request operations. These messages and services can be implemented at Level 0.

Fig 10, Level 1 gives four different types for structuring the information exchange. The information can be structured along animal, location, transport or responsible party data.

Fig 11, Level 2 provides also four different types for structuring the information exchange, but includes much more detail than level 1.

The class diagram of level 1 and 2 do not differentiate between a request for information or the reply. A key result of this project and this BRS, is to include the generic structures into the UNCEFACT structures.



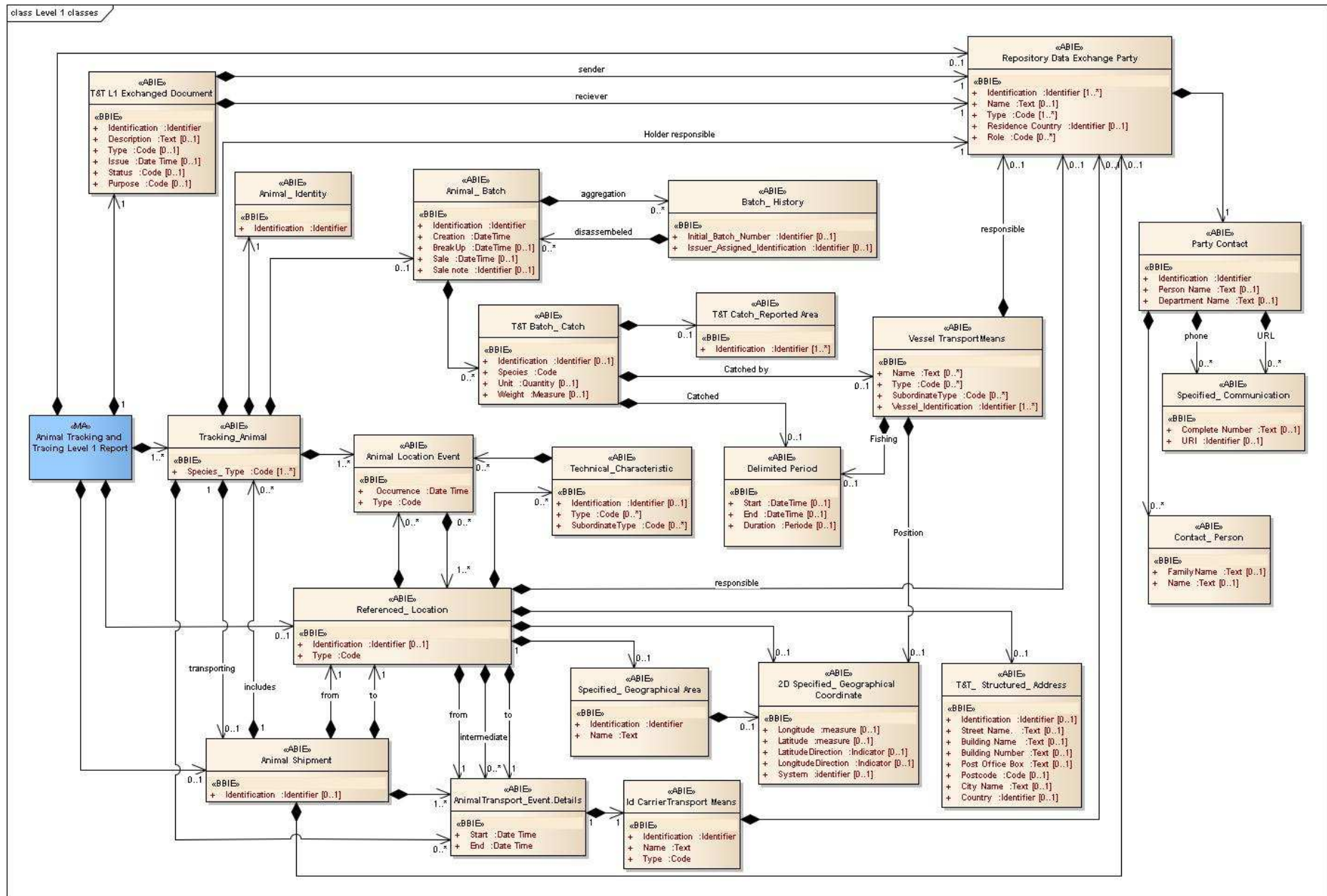


Figure 10 class diagram Level 1 for the exchange of the animal, location and transport data.

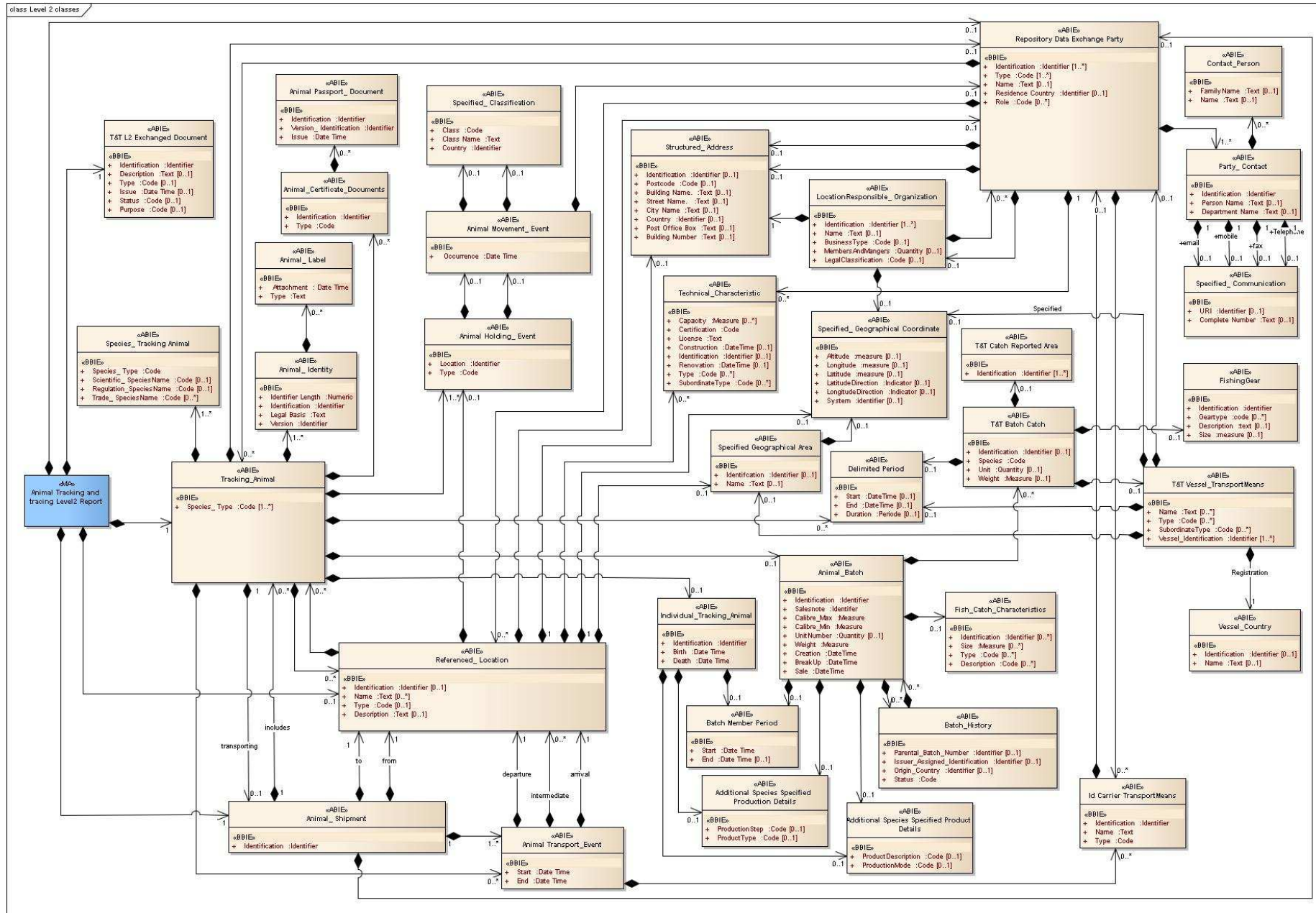


Figure 11 Class diagram for Level 2, for the extended exchange of the animal data, location and transport data.

## 5.6 Business Information Entities

The data structure and the definitions are aligned with the ISO / IEC 19987 specifications, published by the ISO / IEC JTC1 / SC31. These specifications fit with the ISO 18000-63 specifications for the traceability information system, repository and network structures. The specifications are aligned with the animal identification device specifications of ISO 25119 published by the ISO TC23 / SC19.

### 5.6.1 Business Information Entities Level 0

#### T&T L0 Data Exchange Document.

Description: A collection of data for a piece of written, printed or electronic matter that is exchanged between two or more parties in a Tracking and tracing (T&T) document exchange.

Mult.	Business term	Rel.	Type	Description
1	Identification	Att	Identifier	The identifier for this tracking and tracing data exchange document
0..1	Description	Att	Text	A textual description of this exchanged document.
0..1	Type	Att	Code	The code specifying the type of exchanged document
0..1	Issue	Att	Date Time	The date, time, date time or other date time value for the issuance of this exchanged document.
0..1	Status	Att	Code	The code specifying the status of this exchanged document.
0..1	Purpose	Att	Code	A code specifying a purpose of an amendment to this exchanged document.

#### RegistrationEvent

Description: The date or date time of the registration event.

Mult.	Business term	Rel.	Type	Description
1	EventTime	Att	Date Time	The date and time at which the Repository Applications asserts the event occurred.
1	RecordTime	Att	Date Time	The date and time at which this event was recorded by a Repository.

#### ObjectEvent

Description: An ObjectEvent captures information about an event pertaining to one or more physical or digital objects identified by instance-level) or class-level identifiers. Most ObjectEvents are envisioned to represent actual observations of objects, but strictly speaking it can be used for

any event a Capturing Application wants to assert about objects, including for example capturing the fact that an expected observation failed to occur.

Mult.	Business term	Rel.	Type	Description
0..*	ProductList	Att	Identifier	An unordered list of one or more products naming specific objects to which the event pertained.
1	Action	Att	Code	Describes the event's relationship to the lifecycle of the objects and their identifiers named in the event.  The Action type is an enumerated type having three possible values:  ADD (The entity in question has been created or added to.)  OBSERVE (The entity in question has not been changed: it has neither been created, added to, destroyed, or removed from.)  DELETE (The entity in question has been removed from or destroyed Altogether)
0..1	BizStep	Att	Code	The business step of which this event was a part.
0..1	Disposition	Att	Code	The business condition of the objects associated with the Products, presumed to hold true until contradicted by a subsequent event.
0..1	ReadPoint	Att	Identifier	The read point at which the event took place.
0..1	BizLocation	Att	Identifier	The business location where the objects associated with the Products may be found, until contradicted by a subsequent event.
0..*	IMLD	Att	Identifier	Instance/Lot Master Data (ILMD) is data that describes a specific instance of a physical or digital object, or a specific batch/lot of objects that are produced in batches/lot

## AggregationEvent

Description: The event type AggregationEvent describes events that apply to objects that have been aggregated to one another. In such an event, there is a set of "contained" objects that have been aggregated within a "containing" entity that's meant to identify the aggregation itself.

Mult.	Business term	Rel.	Type	Description
0..1	ParentID	Att	Identifier	The identifier of the parent of the association. When the parent identifier is a product this field SHALL contain the "pure identity" URI for the Product.
0..*	Child	Att	Identifier	An unordered list of the products of contained objects identified by instance-level identifiers.
1	Action	Att	Code	Describes the event's relationship to the lifecycle of the objects and their identifiers named in the event.
0..1	BizStep	Att	Code	The business step of which this event was a part.
0..1	Disposition	Att	Code	The business condition of the objects associated with the products, presumed to hold true until

				contradicted by a subsequent event.
0..1	ReadPoint	Att	Identifier	The read point at which the event took place.
0..1	BusinessLocation	Att	Identifier	The business location where the objects associated with the containing and contained products may be found, until contradicted by a subsequent event.

### **TransactionEvent**

Description: The event type TransactionEvent describes the association or disassociation of physical or digital objects to one or more business transactions.

<b>Mult.</b>	<b>Business term</b>	<b>Rel.</b>	<b>Type</b>	<b>Description</b>
0..1	ParentID	Att	Identifier	The identifier of the parent of the objects given in ProductsList and QuantityList.
1..*	ProductList	Att	identifier	An unordered list of the products of the objects identified by instance-level identifiers associated with the business transaction.
1	Action	Att	Code	Describes the event's relationship to the lifecycle of the objects and their identifiers named in the event.  The Action type is an enumerated type having three possible values:  ADD (The entity in question has been created or added to.)  OBSERVE (The entity in question has not been changed: it has neither been created, added to, destroyed, or removed from.)  DELETE (The entity in question has been removed from or destroyed Altogether)
0..1	BizStep	Att	Code	The business step of which this event was a part.
0..1	Disposition	Att	Code	The business condition of the objects associated with the objects, presumed to hold true until contradicted by a subsequent event.
0..1	ReadPoint	Att	Identifier	The read point at which the event took place.
0..1	BizLocation	Att	Identifier	The business location where the objects associated with the containing and contained objects may be found, until contradicted by a subsequent event.

### **TransformationEvent**

Description: A TransformationEvent captures information about an event in which one or more physical or digital objects identified by instance-level (Product) or class-level (Product Class) identifiers are fully or partially consumed as inputs and one or more objects identified by instance-level (Product) or class-level (Product Class) identifiers are produced as outputs. The TransformationEvent captures the relationship between the inputs and the outputs, such that any of the inputs may have contributed in some way to each of the outputs.

Mult.	Business term	Rel.	Type	Description
1..*	inputProductList	Att	Code	An unordered list of one or more Products identifying (at the instance level) objects that were inputs to the transformation.
1..*	outputProductList	Att	Code	An unordered list of one or more QuantityElements identifying (at the class level) objects that were inputs to the transformation.
1	XFormID	Att	Identifier	A unique identifier that links this event to other TransformationEvents having an identical value of XFormIDs.
0..1	BizStep	Att	Code	The business step of which this event was a part.
0..1	Disposition	Att	Code	The business condition of the objects associated with the output objects, presumed to hold true until contradicted by a subsequent event.
0..1	ReadPoint	Att	Identifier	The read point at which the event took place.
0..1	BizLocation	Att	Identifier	The business location where the output objects of this event may be found, until contradicted by a subsequent event.
1	IMLD	Att	Code	Instance/Lot Master Data (ILMD) is data that describes a specific instance of a physical or digital object, or a specific batch/lot of objects that are produced in batches/lot

## QuantityEvent

Description: A QuantityEvent captures an event that takes place with respect to a specified quantity of an object class.

Mult.	Business term	Rel.	Type	Description
1	ProductClass	Att	Code	The identifier specifying the object class to which the event pertains.
1	Quantity	Att	Number	The quantity of object WITHIN the class described by this event.
0..1	BizStep	Att	Code	The business step of which this event was a part.
0..1	Disposition	Att	Code	The business condition of the objects associated with the objects, presumed to hold true until contradicted by a subsequent event.
0..1	ReadPoint	Att	Identifier	The read point at which the event took place.
0..1	BizLocation	Att	Identifier	The business location where the objects associated with the containing and contained objects may be found, until contradicted by a subsequent event.

## QuantityElement

Description: Is a structure that identifies objects identified by a specific class-level identifier, either a specific quantity or an unspecified quantity.

Mult.	Business term	Rel.	Type	Description
1	ProductClass	Att	Code	A class-level identifier for the class to which the specified quantity of objects belongs.
1	Quantity	Att	Number	A number that specifies how many or how much of the specified ProductClass is denoted by this QuantityElement.
1	UOM	Att	Text	Specifies a unit of measure by which the specified quantity is to be interpreted as a physical measure, specifying how much of the specified ProductClass is denoted by this QuantityElement.

## Biztransaction

Description: A business transaction identifies a particular business transaction.

Mult.	Business term	Rel.	Type	Description
0..1	Type	Att	Identifier	An identifier that indicates what kind of business transaction this Business Transaction denotes.
1	BizTransaction	Att	Identifier	An identifier that denotes a specific business transaction.

## Source

Description: Provide additional business context when a registration event is part of a business transfer; that is, a process in which there is a transfer of ownership, responsibility, and/or custody of physical or digital objects.

Mult.	Business term	Rel.	Type	Description
1	Type	Att	Code	An identifier that indicates what kind of source or destination this Source (respectively) denotes.
1	Source	Att	Identifier	An identifier that denotes a specific source

## Destination

Description: Provide additional business context when a registration event is part of a business transfer; that is, a process in which there is a transfer of Repository Data Exchange Party ownership, responsibility, and/or custody of physical or digital objects.

Mult.	Business term	Rel.	Type	Description
1	Type	Att	Code	An identifier that indicates what kind of source or destination this Destination (respectively) denotes.
1	Destination	Att	Identifier	An identifier that denotes a specific or destination.

## Associations

Mult.		Association	Description
Min	Max		
0	1	RegistrationEvent Specified ObjectEvent	An ObjectEvent specified for this RegisteredEvent.
0	1	RegistrationEvent Specified AggregationEvent	An AggregationEvent specified for this RegisteredEven
0	1	RegistrationEvent Specified TransactionEvent	A TransactionEvent specified for this RegisteredEven.
0	1	RegistrationEvent Specified TransformationEvent	A TransformationEvent specified for this RegisteredEven
0	1	RegistrationEvent Specified QuantityEvent	A QuantityEvent specified for this RegisteredEven.
1	*	ObjectEvent Specified BizTransaction	The BizTransaction specified for this ObjectEvent, being an unordered list of business transactions that define the context of this event.
0	*	AggregationEvent Specified BizTransaction	A BizTransaction specified for this AggregationEvent, being an unordered list of business transactions that define the context of this event.
0	*	TransactionEvent Specified BizTransaction	A TransactionEvent specified for this BizTransaction, being an unordered list of business transactions that define the context of this event.
0	*	TransformationEvent Specified BizTransaction	A TransformationEvent specified for this BizTransaction, being an unordered list of business transactions that define the context of this event.
0	*	QuantityEvent Specified BizTransaction	A QuantityEvent specified for this BizTransaction, being an unordered list of business transactions that define the context of this event.
0	*	ObjectEvent Specified QuantityElement	A QuantityElement specified for this ObjectEvent, being an unordered list identifying objects to which the event pertained.
0	*	AggregationEvent Specified QuantityElement	A QuantityElement specified for this AggregationEvent, being an unordered list identifying contained objects.
0	*	TransactionEvent Specified QuantityElement	A QuantityElement specified for this TransactionEvent, being an unordered list identifying contained objects.
0	*	TransformationEvent Specified QuantityElement	A QuantityElement specified for this TransformationEvent, being an unordered list identifying contained objects.
0	*	ObjectEvent Specified Source	A Source specified for this ObjectEvent, being an unordered list that provide context about the originating endpoint of a business transfer of which this event is a part.
0	*	AggregationEvent Specified Source	A Source specified for this AggregationEvent, being an unordered list that provide context about the originating endpoint of a business



Mult.		Association	Description
Min	Max		
			transfer of which this event is a part.
0	*	TransactionEvent Specified Source	A Source specified for this TransactionEvent, being an unordered list that provide context about the originating endpoint of a business transfer of which this event is a part.
0	*	TransformationEvent Specified Source	A Source specified for this TransformationEvent, being an unordered list that provide context about the originating endpoint of a business transfer of which this event is a part.
0	*	ObjectEvent Specified Destination	A Destination specified for this ObjectEvent, being an unordered list that provide context about the terminating endpoint of a business transfer of which this event is a part.
0	*	AggregationEvent Specified Destination	A Destination specified for this AggregationEvent, being an unordered list that provide context about the terminating endpoint of a business transfer of which this event is a part.
0	*	TransactionEvent Specified Destination	A Destination specified for this TransactionEvent, being an unordered list that provide context about the terminating endpoint of a business transfer of which this event is a part
0	*	TransformationEvent Specified Destination	A Destination specified for this TransformationEvent, being an unordered list that provide context about the terminating endpoint of a business transfer of which this event is a part

## 5.6.2 Business Information Entities Level 1

### T&T L1 Data Exchange Document.

Description: A collection of data for a piece of written, printed or electronic matter that is exchanged between two or more parties in a Tracking and tracing (T&T) document exchange.

Mult.	Business term	Rel.	Type	Description
1	Identification	Att	Identifier	The identifier for this tracking and tracing data exchange document
0..1	Description	Att	Text	A textual description of this exchanged document.
0..1	Type	Att	Code	The code specifying the type of exchanged document
0..1	Issue	Att	Date Time	The date, time, date time or other date time value for the issuance of this exchanged document.
0..1	Status	Att	Code	The code specifying the status of this exchanged document.
0..1	Purpose	Att	Code	A code specifying a purpose of an amendment to this exchanged document.

### Tracking\_ Animal.

Description: A domesticated creature or a group of creatures kept or raised on a farm, ranch or kept, raised or caught in the water which is subject in a tracking and or tracing process.

Mult.	Business term	Rel.	Type	Description
1..*	Species_Type	Att	Code	The code specifying the type of species and subclasses for this animal, such as bovine, sheep or salmon ( specify which taxonomy used ?).

### Animal\_ Identity

Description: Information about an attachment to an animal or group of animals which uniquely identifies the animal or the group of animals.

Mult.	Business term	Rel.	Type	Description
1	Identification	Att	Identifier	The identifier for this individual tracking animal or batch of tracking animals.

## Animal Location Event

Description: .The keeping of an animal in a particular location.

Mult.	Business term	Rel.	Type	Description
1	Occurrence	Att	Date Time	The date of the occurrence of this animal location event.
1	Type	Att	Code	The code for the type of this animal location event (such as arrival, departure, born, death).

## Referenced Location

Description: A reference to a physical location or place.

Mult.	Business term	Rel.	Type	Description
0..1	Identification	Att	Identifier	A unique identifier for this referenced location.
1	Type	Att	Code	The code specifying the type of referenced location.

## Technical\_ Characteristic

Description: The technical characteristics of the location or feature where the animals are kept.

Mult.	Business term	Rel.	Type	Description
0..1	Identification	Att	Identifier	A unique identifier for this technical characteristic.
0..1	Type	Att	Code	The code for the type of this technical characteristic.
0..1	Subordinate Type	Att	Code	The code for the subordinate type of this technical characteristic.

## Animal\_ Batch

Description: A group of animals dealt with together

Mult.	Business term	Rel.	Type	Description
1	Identification	Att	Identifier	The unique identifier for the animal batch
1	Creation	Att	Date Time	The date or date time of creation of this animal batch.
0..1	Break up	Att	Date Time	The date or date time for the break up of this animal batch.
0..1	Sale	Att	Date Time	The data or date time of the sale of this animal

				batch.
0..1	Sale_note	Att	Identifier	An identifier for this sales note.

### Batch\_History

Description: A group of animals dealt with together (animal batch) which has a parent or child relation to another animal batch.

Mult.	Business term	Rel.	Type	Description
0..1	Initial Batch Number	Att	Identifier	The unique identifier for this animal batch.
0..1	Issuer_Assigned- Identification	Att	Identifier	The unique identifier assigned by a party to this animal batch.

### Animal Shipment

Description: The physical process of transporting tracking animals.

Mult.	Business term	Rel.	Type	Description
1	Identification	Att	Identifier	The identifier for this animal shipping.

### Animal Transport Event

Description: The conveyance of an animal or group of animals from one location to another location.

Mult.	Business term	Rel.	Type	Description
1	Start	Att	Date Time	The data or date time for the start of this animal transport event.
1	End	Att	Date Time	The data or date time for the end of this animal transport event.

### Id Carrier Transport Means

Description: A device used to convey animals or group of animals that are subject to tracking and tracing from one location to another location.

Mult.	Business term	Rel.	Type	Description
1	Identification	Att	Identifier	The identifier for this Id Carrier transport means.
1	Name	Att	Text	The identifier for this Id Carrier transport means expressed as text.
1	Type	Att	Code	The type, expressed as a code, for this Id Carrier transport means.

## 2D Specified\_ Geographical Coordinate

Description: The latitude and longitude of a specified place, by which its relative situation on the globe is known.

Mult.	Business term	Rel.	Type	Description
0..1	Longitude	Att	Measure	The measure of the longitude as an angular distance east or west from the Greenwich meridian to the meridian of a specific place for this specified geographical coordinate.
0..1	Latitude	Att	Measure	The measure of the latitude as an angular distance north or south from the Equator meridian to the meridian of a specific place for this specified geographical coordinate.
0..1	LongitudeDirection	Att	Measure	The indication of whether the longitude as a compass direction from the Greenwich meridian to the meridian of a specific place is East (+) or West (-) for this specified geographical coordinate.
0..1	LatitudeDirection	Att	Measure	The indication of whether the latitude compass direction from the Equator meridian to the meridian of a specific place for this specified geographical coordinate is North (+) or South (-).
0..1	System	Att	Identifier	The unique identifier of the system used for measuring this specified geographical coordinate.

## T&T Structured Address

Description: The location, using a structured address format, at which a location, a technical structure, (group of) animals, a particular organization or person may be found or reached.

Mult.	Business term	Rel.	Type	Description
0..1	Identification	Att	Identifier	An identifier for this tracking and tracing structured address.
0..1	Postcode	Att	Code	The code specifying the postcode in the structured address.
0..1	Street Name	Att	Text	The name, expressed as text, of a street or thoroughfare in the structured address.
0..1	Building Name	Att	Text	The name, expressed as text, of a building, a house or other structure on a street in the structured address.
0..1	Building Number	Att	Text	The number, expressed as text, of a building or house on a street at this structured address.
0..1	City Name	Att	Text	The name, expressed as text, of the city, town or village in the structured address.
0..1	Country	Att	Identifier	The unique identifier of a country in the structured address (Reference ISO 3166 and UN/ECE Rec 3).

## Specified\_Geographical Area

Description: A named, delimited and identified part of a land and or water surface of the globe.

Mult.	Business term	Rel.	Type	Description
0..1	Identification	Att	Identifier	The identifier for this geographical area.
0..1	Name	Att	Name	The name, expressed as text for this specified geographical area.

## Delimited Period

Description: The time period for the catch session of this vessel.

Mult.	Business term	Rel.	Type	Description
0..1	Start	Att	Date Time	A date or date time indicating the start of the periode for this batch in the catch session of this vessel.
0..1	End	Att	Date Time	A date or date time indicating the end of the periode in this catch session of this vessel.
0..1	Duration	Att	Periode	The duration of the periode for this batch in the catch session of this vessel.

## T&T Batch\_Catch

Description: The specification of the catch session of the vessel within the batch.

Mult.	Business term	Rel.	Type	Description
0..1	Species	Att	Code	The code for the species in this T&T Batch Catch.
0..1	Unit	Att	Quantity	The number of units, expressed as a quantity, in this T&T Batch_Catch.
0..1	Weight	Att	Measure	The weight, expressed as a measure, of this T&T Batch_Catch.
0..1	Identification	Att	Identifier	The identifier for this T&T Batch_Catch.

## T&T Catch\_Reported Area

Description: The reported area for this batch where the catch occurred.

Mult.	Business term	Rel.	Type	Description
1..*	Identification	Att	identifier	An identifier for this T&T Catch_Reported Area.

## Vessel Transport Means

Description: A vessel used to catch animals that are subject to tracking and tracing or to convey animals or group of animals that are subject to tracking and tracing from place to place.

Mult.	Business term	Rel.	Type	Description
0..*	Name.	Att	text	A name expressed as text for this Vessel Transport Means.
0..*	Type	Att	Code	A code for type of this Vessel Transport Means.
0..1	Subordinate Type	Att	Code	A code for the subordinate type of this Vessel Transport Means.
1..*	Vessel_Identification	Att	Identifier	An identifier for the Vessel Transport Means.

### Repository Data Exchange Party

Description: A specified individual, group, or body having a role in a business function in the Tracking and Tracing process.

Mult.	Business term	Rel.	Type	Description
1..*	Identification	Att	Identifier	An identifier for this party.
1..*	Type	Att	Code	A code for the type for this party.
0..1	Name	Att	Text	A name expressed as text for this party.
0..*	Role	Att	Code	A code for the role for this party.
0..1	Residence Country	Att	Code	The code for the country of residence of this party.

### Party Contact

Description: A person or department that acts as a point of contact for a party.

Mult.	Business term	Rel.	Type	Description
1	Identification	Att	Identifier	An unique identifier of this party contact.
0..1	PersonName	Att	Text	A name expressed as text of the person for this party contact.
0..1	Department Name	Att	Text	A name, expressed as text, of the department to which this party contact belongs.

### Specified Communication

Description: An exchange of information between persons and/or organizations.

Mult.	Business term	Rel.	Type	Description
0..1	URI	Att	Identifier	The Uniform Resource Identifier (URI), such as a web or an email address, for this specified communication.

0..1	CompleteNumber	Att	Text	The text string of characters that make up the complete number for this specified communication.
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## Contact Person

Description: A individual human being involved in the exchange of information between persons and/or organizations

Mult.	Business term	Rel.	Type	Description
0..1	Name	Att	Text	The name, expressed as text, of this person.
0..1	Family Name	Att	Text	The family name, expressed as text, of this person.

## Associations

Mult. Min Max		Association	Description
1	1	T&T Exchanged Document Sending Repository Data Exchange Party	The sending party for this T&T exchange document.
1	1	T&T Exchanged Document Recieving Repository Data Exchange Party	The recieving party for this T&T exchange document
1	1	Tracking_Animal. Holder Responsible. Repository Data Exchange Party	The Holder responsible party for this tracking animal.
1	1	Tracking Animal Specified Animal_Identity	The animal identity specified for this tracking animal
0	1	Tracking Animal Transported Animal Shipping	The animal shipping transporting the tracking animal.
0	1	Tracking Animal Transported Animal Transport Event	The animal transport event moving the tracking animal
0	1	Tracking Animal Specified Animal_Batch	The animal batch specified for this tracking animal.
1	n	Tracking_Animal Specified Location Event	A location event specified for this tracking animal.
0	*	Animal Batch Aggregated Batch History	The animal batch is the aggregation of former animal batches identified in the batch history.
0	*	Animal_Batch Specified T&T Batch_Catch	The specified T&T batch_ catch within this Animal Batch.
0	1	T&T Batch_Catch Specified Vessel_ TransportMeans	The specified vessel transport means for this T&T Batch_Catch.
0	1	T&T Batch_Catch Specified Delimited Period	The specified delimited period for this T&T Batch_Catch.
0	1	T&T Batch_Catch Specified T&T Catch Reported Area	The specified catch reported area for this T&T Batch_Catch.



Mult.		Association	Description
Min	Max		
0	*	Batch History Disassembled Animal Batch	The batch history is the disassembling of the animal batch into new identified animal batch(es).
0	*	Animal Location Event Specified Referenced Location	A specified referenced location for this animal location event.
0	*	Animal Location Event Specified Technical Characteristic	A specified animal location event for this technical characteristic.
0	*	Referenced Location Specified AnimalLocation Event	A specified animal location event for this referenced location.
0	*	Referenced location Specified Technical_Characteristics	The specified technical characteristics for this referened location.
1	1	Referenced Location From AnimalTransport_Event	The referenced location from where the animal transport event starts.
1	1	Referenced Location To AnimalTransport_Event	The referenced location from where the animal transport event ends.
0	*	Referenced Location Intermediate AnimalTransport_Event	An intermediate referenced location for the animal transport event.
0	1	Referenced Location Specified 2D Geographical Coordinate	A specified 2D geographical coordinate for this referenced location.
0	1	Referenced Location Specified T&T_ Structured Address	A specified tracking and tracing structured address for this referenced location
0	1	Referenced Location Specified Geographical Area	A specified geographical area for this referenced location.
0	1	Geographical Area Specified 2D Geographical Coordinate	A specified 2D geographical coordinate for this geographical area.
0	1	Referenced Location Responsible Repository Data Exchange Party	The party responsible for this referenced location.
0	*	Animal Shipping Includes Tracking Animal	The tracking animal included in this Animal shipping
1	*	Animal Shipping Specified Animal Transport Event	The animal shipping event specified for this animal shipping.
0	1	Animal Shipping Responsible Repository Data Exchange Party	The party responsible for this shipping.
1	1	Animal Shipping From Referenced Location	The referenced location from which this shipping originates
1	1	Animal Shipping To Referenced Location	The referenced location to which this shipping destinatees
1	1	Animal Transport Event Specified Id Carrier Transport Means	The specified transport means for this animal transport event
0	1	Vessel_ TransportMeans Specified Delimited Period	The specified delimited period for this vessel transport means.
0	1	Vessel_ TransportMeans Specified 2D Specified_ Geographical Coordinate	The specified 2D geographical coordinate for this vessel transportmeans.
0	1	Vessel TransportMeans Repository Data Exchange Party	A party responsible for this vessel

Mult.		Association	Description
Min	Max		
			transportmeans.
0	1	Id CarrierTransportMeans Responsible Repository Data Exchange Party	The party responsible for this transport means.
1	1	Repository Data Exchange PartyDefined PartyContact	The defined contact for this specified party.
0	1	PartyContact.Telephone Specified Communication	The telephone number of this specified party.
0	1	PartyContact.URI Specified Communication	The website Uniform Resource Identifier (URI) of this specified party.
0	*	PartyContact Specified ContactPerson	The specified person for this party

### 5.6.3 Business Information Entities Level 2

#### T&T L2 Data Exchange Document.

Description: A collection of data for a piece of written, printed or electronic matter that is exchanged between two or more parties in a Tracking and tracing (T&T) document exchange.

Mult.	Business term	Rel.	Type	Description
1	Identification	Att	Identifier	The identifier for this tracking and tracing data exchange document
0..1	Description	Att	Text	A textual description of this exchanged document.
0..1	Type	Att	Code	The code specifying the type of exchanged document
0..1	Issue	Att	Date Time	The date, time, date time or other date time value for the issuance of this exchanged document.
0..1	Status	Att	Code	The code specifying the status of this exchanged document.
0..1	Purpose	Att	Code	A code specifying a purpose of an amendment to this exchanged document.

#### Tracking\_Animal

Description: A domesticated creature or a group of creatures kept or raised on a farm, ranch. or kept, raised or caught in the water which is subject in a tracking and or tracing process.

Mult.	Business term	Rel.	Type	Description
1..*	Species_Type.	Att	Code	The code specifying the type of species and subclasses for this animal, such as bovine, sheep or salmon (specify which taxonomy used ?).

## Species\_Tracking Animal

Description: The species for this tracking animal or batch of animals.

Mult.	Business term	Rel.	Type	Description
1	Species_ Type	Att	Code	The code for the species for the tracking animal.
0..1	Scientific_ Species Name	Att	Code	The code for the scientific name for this species of the tracking animal.
0..1	Regulation_ Species Name	Att	Code	The code for the regulation name for this species of the tracking animal.
0..1	Trade_ Species Name	Att	Code	The code for the trade name for this species of the tracking animal.

## Animal\_ Identity

Description: Information about an attachment to an animal or group of animals which uniquely identifies the animal or the group of animals.

Mult.	Business term	Rel.	Type	Description
1	Identification	Att	Identifier	The identifier for this individual tracking animal or batch of tracking animals
1	Identifier Length	Att	Numeric	The length, expressed as the number of characters, of the identifier in this animal identity
1	Legal basis	Att	Text	The legal basis, expressed as text, for this animal identity.
1	Version	Att	Identifier	The identifier of the version of this animal identity.

## Animal\_ Label

Description: Information about an attachment to an animal which uniquely identifies it.

Mult.	Business term	Rel.	Type	Description
1	Attachment	Att	Date Time	The date of attachment of this animal label.
1	Type	Att	Text	The type of animal label, expressed as text.

## Animal\_ Certificate Document

Description: A collection of data for a piece of written, printed or electronic matter that provides information or evidence about the identity of an animal or the batch of animals

Mult.	Business term	Rel.	Type	Description
1	Identification	Att	Identifier	The identifier for this animal certificate document

1	Type	Att	Code	The type of this animal certificate document, expressed as a code.
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### Animal Passport\_ Document

Description: A collection of data for a piece of written, printed or electronic matter that provides information or evidence about the identity of an animal for domestic or cross border movement purposes.

Mult.	Business term	Rel.	Type	Description
1	Identification	Att	Identifier	The identifier for this animal passport document.
1	Version	Att	Code	The identifier for the version of this animal passport document.
1	Issue	Att	Date Time	The date for the issuance of this animal passport document.

### Animal Holding\_ Event

Description: The keeping of an animal in a particular location.

Mult.	Business term	Rel.	Type	Description
1	Location	Att	Identifier	The identifier of the location for this animal holding event.
1	Type	Att	Code	The type of the location, expressed as a code.

### Animal Movement\_ Event. Details

Description: A conveyance of an animal or animals from place to place.

Mult.	Business term	Rel.	Type	Description
1	Occurrence	Att	Date Time	The date of the occurrence of this animal movement event.

### Specified\_ Classification. Details

Description: A specified systematic arrangement in classes or categories according to established criteria.

Mult.	Business term	Rel.	Type	Description
1	Class	Att	Code	The code specifying the class for this specified classification.
1	Class Name	Att	Text	The class name, expressed as text, for this specified classification.

1	Country	Att	Identifier	The country identifier for this specified classification.
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### Referenced Location

Description:..A reference to a physical location or place.

Mult.	Business term	Rel.	Type	Description
0..1	Identification	Att	Identifier	A unique identifier for this referenced location.
0..*	Name	Att	Text	A name, expressed as text, of this referenced location.
0..1	Type	Att	Code	The code specifying the type of referenced location.
0..*	Description	Att	Text	The textual description for this referenced location.

### Technical\_Characteristic

Description: The technical characteristics of the location or feature where the animals are kept.

Mult.	Business term	Rel.	Type	Description
0..1	Identification	Att	Identifier	A unique identifier for this technical characteristic.
0..*	Type	Att	Code	The code for the type of this technical characteristic.
0..*	Subordinate Type	Att	Code	The code for the subordinate type of this technical characteristic.
0..1	Capacity	Att	Measure	The production capability of the feature, expressed as a volume, a surface - area or the number of animals.
1	Certification	Att	Code	A code for the certification label granted to this technical characteristic.
1	License	Att	Text	The indication of the license to operate this technical characteristic, expressed as text.
0..1	Construction	Att	Date Time	The construction date time for this technical characteristic.
0..1	Renovation	Att	Date Time	The date or date time for the latest renovation of this technical characteristic.

### LocationResponsible Organization

Description: The organizational characteristics of the establishment where the animals are kept.

Mult.	Business term	Rel.	Type	Description
0..*	Identification	Att	Identifier	An identifier for the related organization of the

				establishment.
0..1	Name	Att	Text	The name for the related organization of the establishment, expressed as text.
0..1	BusinessType	Att	Code	The business type, expressed as code, for the establishment.
0..1	Members and Managers	Att	Quantity	The total number of members and managers of this establishment.
0..1	Legal Classification	Att	Code	The legal classification expressed as code, for this establishment.

### 3D Specified\_ Geographical Coordinate

Description: The latitude, longitude and altitude of a place, by which its relative situation on the globe is known.

Mult.	Business term	Rel.	Type	Description
0..1	Altitude	Att	Measure	The measure of the altitude that reflects the vertical elevation of an object above a surface for this specified geographical coordinate.
0..1	Latitude	Att	Measure	The measure of the longitude as an angular distance east or west from the Greenwich meridian to the meridian of a specific place for this specified geographical coordinate.
0..1	Longitude	Att	Measure	The measure of the latitude as an angular distance north or south from the Equator meridian to the meridian of a specific place for this specified geographical coordinate.
0..1	Latitude Direction	Att	Indicator	The indication of whether the latitude compass direction from the Equator meridian to the meridian of a specific place for this specified geographical coordinate is North (+) or South
0..1	Longitude Direction	Att	Indicator	The indication of whether the longitude as a compass direction from the Greenwich meridian to the meridian of a specific place is East (+) or West (-) for this specified geographical.
0..1	System	Att	Identifier	The identifier of the system used for measuring this specified geographical coordinate.

### T&T Structured Address

Description: The location, using a structured address format, at which a location, a technical structure, (group of) animals , a particular organization or person may be found or reached.

Mult.	Business term	Rel.	Type	Description
0..1	Identification	Att	Identifier	An identifier for this tracking and tracing structured address.
0..1	Postcode	Att	Code	The code specifying the postcode in the structured address.
0..1	Street Name	Att	Text	The name, expressed as text, of a street or

				thoroughfare in the structured address.
0..1	Building Name	Att	Text	The name, expressed as text, of a building, a house or other structure on a street in the structured address.
0..1	Building Number	Att	Text	The number, expressed as text, of a building or house on a street at this structured address.
0..1	City Name	Att	Text	The name, expressed as text, of the city, town or village in the structured address.
0..1	Country	Att	Identifier	The unique identifier of a country in the structured address (Reference ISO 3166 and UN/ECE Rec 3).

### Specified Geographical Area

Description: A named, delimited and identified part of a land and or water surface of the globe.

Mult.	Business term	Rel.	Type	Description
0..1	Identification	Att	Identifier	The identifier for this geographical area.
0..1	Name	Att	Text	The name, expressed as text for this specified geographical area.

### Delimited Period

Description: The time period for the catch session of this vessel.

Mult.	Business term	Rel.	Type	Description
0..1	Start	Att	Date Time	A date or date time indicating the start of the periode for this batch in the catch session of this vessel.
0..1	End	Att	Date Time	A date or date time indicating the end of the periode in this catch session of this vessel.
0..1	Duration	Att	Periode	The duration of the periode for this batch in the catch session of this vessel.

### T&T Batch\_Catch

Description: The specification of the catch session of the vessel within the batch.

Mult.	Business term	Rel.	Type	Description
0..1	Species	Att	Code	The code for the species in this T&T Batch Catch
0..1	Unit	Att	Quantity	The number of units, expressed as a quantity, in this T&T Batch_Catch
0..1	Weight	Att	Measure	The weight, expressed as a measure, of this T&T Batch_Catch
0..1	Identification	Att	Identifier	The identifier for this T&T Batch_Catch

## T&T Catch\_ Reported Area

Description: The reported area for this batch where the catch occurred.

Mult.	Business term	Rel.	Type	Description
1..*	Identification	Att	identifier	An identifier for this T&T Catch_ Reported Area

## T&TVessel Transport Means

Description: A vessel used to catch animals that are subject to tracking and tracing or to convey animals or group of animals that are subject to tracking and tracing from place to place.

Mult.	Business term	Rel.	Type	Description
0..*	Name.	Att	text	A name expressed as text for this T&TVessel transport means.
0..*	Type	Att	Code	A code for type of this T&TVessel transport means.
0..1	Subordinate Type	Att	Code	A code for the subordinate type of this T&TVessel transport means.
1..*	Vessel_Identification	Att	Identifier	An identifier for the T&TVessel transport means.

## FishingGear

Description: The fishing gear used for this catchment

Mult.	Business term	Rel.	Type	Description
1	Identification	Att	Identifier	The Identifier for the fishing gear
0..*	Geartype	Att	Code	A type, expressed as a code, for this fishing gear
0..1	Description	Att	Text	A description of this fishing gear , expressed as text.
0..1	Size	Att	Measure	The size of this fishing gear, expressed as a measure.

## Vessel\_ Country

Description: The country of registration of the vessel (flagstate)

Mult.	Business term	Rel.	Type	Description
0..*	Identification	Att	Identifier	The Identifier for the country of registration of the vessel.
0..1	Name	Att	Text	The name expressed as text, for of the country of registration of the vessel.



## Animal\_Batch

Description: A group of animals dealt with together

Mult.	Business term	Rel.	Type	Description
1	Identification	Att	Identifier	The unique identifier for the animal batch.
1	Creation	Att	Date Time	The date or date time of creation of this animal batch.
0..1	Break up	Att	Date Time	The date or date time for the break up of this animal batch.
0..1	Sale	Att	Date Time	The data or date time of the sale of this animal batch.
0..1	Sale_note	Att	Identifier	The identifier for this sales note.
1	Calibre Max	Att	Measure	The upper limit for the class, expressed as a measure, for the size of the individual animals in this batch.
1	Calbre Min	Att	Measure	The lower limit for the class, expressed as a measure, for the size of the individual animals in this batch.
0..1	UnitNumber	Att	Quantity	The number of animals in the package units, used for this batch.
0..1	Weight	Att	Measure	The weight, expressed as a measure of the animals, in this batch.

## Batch\_History

Description: A group of animals dealt with together (animal batch) with a parent or child relationship to another animal batch.

Mult.	Business term	Rel.	Type	Description
0..1	Parential_Batch Number	Att	Identifier	The unique identifier for the associated parental animal batch.
0..1	Issuer_assigned_Identification	Att	Identifier	The unique identifier assigned by a party to the animal batch.
0..1	Country of Origin	Att	Identifier	The identifier for country of origin of the batch.
1	Status	Att	Code	The status expressed as code, for the batch.

## Animal Shipment

Description: The process of transporting tracking animals.

Mult.	Business term	Rel.	Type	Description
1	Identification	Att	Identifier	The identifier for this animal shipment.

## Animal Transport Event

Description: The conveyance of an animal or group of animals from one location to another location.

Mult.	Business term	Rel.	Type	Description
1	Start	Att	Date Time	The data or date time for the start of this animal transport event.
1	End	Att	Date Time	The data or date time for the end of this animal transport event.

## Id Carrier Transport Means

Description: A device used to convey animals or group of animals that are subject to tracking and tracing from one location to another location.

Mult.	Business term	Rel.	Type	Description
1	Identification	Att	Identifier	The identifier for this transport means.
1	Name	Att	Text	The name for this transport means expressed as text.
1	Type	Att	Code	The code for the type of this transport means.

## Individual\_Tracking\_Animal

Description: An individual creature which is subject of a tracking and tracing process.

Mult.	Business term	Rel.	Type	Description
1	Identification	Att	Identifier	The identifier for this livestock animal, such as the number appearing on its ear tag.
1	Birth	Att	Date Time	The date of birth for this livestock animal.
1	Death	Att	Date Time	The date of death for this livestock animal.

## Batch Member Period

Description: The period when the individual animal is a member of the batch

Mult.	Business term	Rel.	Type	Description
1	Start	Att	Date Time	The data or date time for the start of this batch member period.
0..1	End	Att	Date Time	The data or date time for the end of this batch member period.

### Additional Species Specified Production Details

Description: Additional production stage details for this specified animal species product.

Mult.	Business term	Rel.	Type	Description
0..1	Production Step	Att	Code	The production step expressed as a code for this production process.
0..1	Product Type	Att	Code	The type for the product expressed as a code produced with this specified production process.

### Additional Species Specified Product Details

Description: Additional product stage details for this specified animal species product

Mult.	Business term	Rel.	Type	Description
0..1	Product Description	Att	Code	The description expressed as a code for this processed product.
0..1	Production Mode	Att	Code	The production mode expressed as a code for this processed product.

### Fish Catch Characteristics

Description: The specified details of the catch results fish batches.

Mult.	Business term	Rel.	Type	Description
0..1	Identification	Att	Identifier	An identifier for this specified batch .
0..1	Size	Att	Measure	A size, expressed as a measure for this specified batch.
0..1	Type	Att	Code	A type, expressed as a code for this batch.
0..1	Description	Att	Code	A description, expressed as a code, for this batch

### Repository Data Exchange Party

Description: A specified individual, group or body having a role in a business function in the Tracking and Tracing process.

Mult.	Business term	Rel.	Type	Description
1..*	Identification	Att	Identifier	An identifier for this party.
1..*	Type	Att	Code	A code for the type for this party.
0..1	Name	Att	Text	A name expressed as text for this party.

0..*	Role	Att	Code	A code for the role for this specified party.
0..1	Residence Country	Att	Code	The code for the country of residence of this party.

## Party Contact

Description: A person or department that acts as a point of contact for a party.

Mult.	Business term	Rel.	Type	Description
1	Identification	Att	Identifier	An unique identifier of this party contact.
0..1	PersonName	Att	Text	A name expressed as text of the person for this party contact.
0..1	Department Name	Att	Text	A name, expressed as text, of the department to which this party contact belongs.

## Specified Communication

Description: An exchange of information between persons and/or organizations.

Mult.	Business term	Rel.	Type	Description
0..1	URI	Att	Identifier	The Uniform Resource Identifier (URI), such as a web or an email address, for this specified communication.
0..1	CompleteNumber	Att	Text	The text string of characters that make up the complete number for this specified communication.

## Contact Person

Description: A individual human being involved in the exchange of information between persons and/or organizations

Mult.	Business term	Rel.	Type	Description
0..1	Name	Att	Text	The name, expressed as text, of this person.
0..1	Family Name	Att	Text	The family name, expressed as text, of this person.

## Associations

Mult.		Association	Description
Min	Max		
0	1	Repository Data Exchange Party Specified Tracking_Animal	The specified Repository Data Exchange Party responsible for this tracking animal.
0	1	Tracking_Animal Specified Repository Data Exchange Party	The specified tracking animal kept by and under the responsibility of the Repository Data Exchange Party.
1	*	Tracking_Animal Specified Species_ Tracking Animal	The animal species specified for this tracking animal.
1	*	Tracking_Animal Specified Animal_ Identity Animal	Identifying information specified for this tracking animal.
0	*	Animal_ Identity. Specified. Animal_ Label	A label specified for this animal identity, such as an identification tag, a transponder or a tattoo.
0	*	Tracking_Animal Specified Animal_Certificate_Documents	An animal certificate document associated with this tracking animal.
0	*	Animal_Certificate_Documents Specified Animal Passport_ Document	An animal passport document associated animal certificate documents.
1	*	Tracking Animal. Specified. Animal Holding_ Event	An animal holding event specified for this tracking animal.
0	1	Animal Holding_ Event. Arrival_ Specified. Animal Movement_ Event	The arrival movement event specified for this animal holding event.
0	1	Animal Holding_ Event. Departure_ Specified. Animal Movement_ Event	The departure movement event specified for this animal holding event.
0	1	Animal Movement_ Event. National_ Applicable. Specified_ Classification	The national classification applicable to this animal movement event.
0	1	Animal Movement_ Event. Unified_ Applicable. Specified_ Classification	The unified classification applicable to this animal movement event.
0	1	Animal Movement_ Event Specified Repository Data Exchange Party	The Repository Data Exchange Party responsible for this specified Animal movement event.
0	*	Tracking_Animal Located Referenced_ Location	The referenced location specifying the location where the tracking animal residents.
0	*	Referenced_ Location Includes Tracking_Animal	The tracking animal which is located on this referenced location.
0	*	Repository Data Exchange Party Specified Referenced_ Location	A referenced location for which the repository data exchange party has responsibility.
1	1	Referenced_ Location Specified Repository Data Exchange Party	The Repository Data Exchange Party responsible for this referenced location.
0	1	Referenced_Location. Physical. Structured_ Address	The physical address of this referenced location.
0	*	Referenced_Location Specified Technical_Characteristic	The technical characteristics for the referenced location.
0	1	Referenced_Location.Physical. Specified_ Geographical Coordinate	The Geographical coordinate information for

Mult.		Association	Description
Min	Max		
			this referenced location.
0	1	Referenced_Location.Physical. Specified_ Geographical Area	The Geographical Area specified for this referenced location.
0	1	Geographical Area Allocated Specified_ Geographical Coordinate	The Geographical coordinate information allocated for this Geographical Area.
0	1	Vessel_ TransportMeans specified Specified_ Geographical Coordinate	The specified specified geographical coordinate for the specified vessel transport means.
0	*	Tracking_Animal Specified Delimited Period	A specified delimited periode for for this tracking animal.
0	1	Tracking_Animal Specified Animal_Batch	A specification of the animal batch for this tracking animal.
0	1	Tracking_Animal Specified Individual_Tracking_Animal	A specification of the individual animal for this tracking animal.
0	1	Individual_Tracking_Animal Specified Batch Member Period	The batch member period specified for this individual tracking animal.
0	1	Animal_Batch Specified Batch Member Period	The batch member period specified for this animal batch.
0	1	Individual_Tracking_Animal Specified Additional Species Specified Production Details	Additional Species Specified Production Details specified for this Individual Tracking Animal.
0	1	Animal_Batch Specified Additional Species Specified Production Details	Additional Species Specified Production Details specified for this Animal Batch.
0	1	Individual_Tracking_Animal Specified Additional Species Specified Product Details	Additional Species Specified Product Details specified for this Individual_Tracking_Animal
0	1	Animal_Batch Specified Additional Species Specified Product Details	Additional Species Specified Product Details specified for this Animal batch
0	*	Animal_Batch Aggregated Batch History	The animal batch is the aggregation of former animal batches identified in the batch history.
0	*	Batch History _issembled Animal_Batch	The batch history is the disassembling of the animal batch into new identified animal batch(es).
0	1	Animal_Batch Specified Fish_Catch_Characteristics	The fish catch characteristics for this animal batch.
0	*	Animal_Batch Specified T&T Batch Catch	The tracking and tracing batch catch specified for this animal batch.
0	*	T&T Batch Catch Specified T&T Catch Reported Area	The tracking and tracing catch reported area specified for this tracking and tracing batch catch.
0	1	T&T Batch Catch Specified Delimited Period	The delimited period specified fort this tracking and tracing batch catch.
0.	1	T&T Batch Catch Specified FishingGear	The FishingGear specified for this T&T Batch Catch
0	1	T&T Batch Catch Specified Vessel_TransportMeans	The vessel transport means specified for this tracking and tracing batch catch.

Mult.		Association	Description
Min	Max		
1	1	Vessel_TransportMeans Registration Vessel_ Country	The country of registration for this vessel transport means.
0	1	Vessel_TransportMeans Specified Specified_ Geographical Area	The specified geographical area specified for this vessel transport means.
0	1	Vessel_TransportMeans Specified. Delimited Period	A delimited period of fishing for this vessel transport means.
0	1	Vessel_Transportmeans responsible Repository Data Exchange Party	The repository data exchange party responsible for this vessel transport means.
0	1	Repository Data Exchange Party Fysical T&T Structured_ Adress	The fysical T&T structured address for this repository data exchange party.
0	1	Repository Data Exchange Party Postal T&T Structured_ Adress	The postal T&T structured address for this repository data exchange party.
0	1	Technical Organisation Responsible Repository Data Exchange Party	The repository data exchange party responsible for this technical organisation.
0	*	Technical Organisation managed Repository Data Exchange Party	A technical organisation managed by this repository data exchange party.
1	1	Technical Organisation Specified T&T Structured_ Adress	The T&T structured address for this technical organisation.
0	*	Repository Data Exchange Party managed Technical Characteristics	A technical characteristics managed by this repository data exchange party.
0	1	Tracking_Animal Transporting Animal_ Shipping	The Animal Shipping transporting this Tracking Animal.
0	*	Animal_ Shipping Includes Tracking_Animal	A Tracking Animal included in this Animal Shipping.
1	1	Animal_ Shipping To Referenced_ Location	The referenced Location destination for this animal shipping.
1	1	Animal_ Shipping From Referenced_ Location	The referenced Location source for this animal shipping.
1	*	Animal_ Shipping Specified Animal Transport_Event	The animal transport event specified for this animal shipping.
0	*	Tracking_Animal Specified Animal Transport_Event	The tracking animal transported with this animal transport event.
0	*	Animal Transport_Event Specified Id Carrier TransportMeans	The id carrier transport means specified for this animal transport event.
1	1	Animal Transport_Event Departure Referenced_ Location	The departure referenced location of this animal transport event.
1	1	Animal Transport_Event Arrival Referenced_ Location	The arrival referenced location of this animal transport event.
0	*	Animal Transport_Event Intermediate Referenced_ Location	The intermediate referenced location of this animal transport event.
0	1	Id Carrier TransportMeans responsible Repository Data Exchange Party	The repository data exchange party responsible for this id carrier transport means.
0	*	Repository Data Exchange Party Managed Id Carrier TransportMeans	An this id carrier transport means managed by this repository data exchange party.

Mult.		Association	Description
Min	Max		
1	*	Repository Data Exchange Party Defined Party_ Contact	The party contact for this repository data exchange party.
1	*	Party_ Contact Specified Contact_Person	The contact person for this party contact.
0	1	Party_ Contact Mobile Specified_ Communication	The mobile telephone communication for this party contact.
0	1	Party_ Contact Fax Specified_ Communication	The fax communication for this party contact.
0	1	Party_ Contact Telephone Specified_ Communication	The telephone communication for this party contact.
0	1	Party_ Contact email Specified_ Communication	The email communication for this party contact.
0	1	Animal Shipping Responsible Repository Data Exchange Party	The repository data exchange party responsible for this animal shipping.



## 5.7 Business rules

The Tracking and Tracing message is used to exchange information between the business partners in life animals and fish, the tracking and tracing parties and authorities. The message contains not any specified business rules.

The different receiving parties may get dedicated content, according to their information requirements and conform the licence to distribute the data.

## 5.8 Definition of terms

### 5.8.1 Parties and party roles

Terms	Definitions
Holder	The party who keeps and is responsible for an animal kept on a location.
Transporter	The party transporting animals from one place to another and providing transport means for this transport .
Trader	The party who trades in animals.
Tracking and tracing repository	A repository in which the business partners declare all tracking and tracing events. Parties can search the repository for T&T events and retrieve tracking and tracing information.
Authority	An authority responsible for legal administration of animals, holding, transport or catchment, or responsible for human health, food and feed safety, animal health or environmental issues
Tracking and tracing requesting party	The party searching, requesting and receiving tracking and tracing information about an animal , group of animals or animal products
Repository party	A party providing operating the tracking and tracing repository with all the services concerned.
Repository data exchange party	The party responsible for declaring an animal tracking and tracing event to the tracking and tracing repository. In general that is the party responsible for the tracking animal, a referenced location, a vessel transport means, an id carrier transport means or an animal shipping.
Animal registration office	A party who operates a (legal) animal registration with all the services concerned
T&T event	A event what occurs to an animal, group of animals or animal products, related to the issues What, Where, When, Who and Why.

## Appendix 1 Explanation of the use of Level 0 and the relation to the levels 1 and 2 in Tracking and tracing animals and fish

Tracking event : { animal, location; party ; transport means; action; date time }

Level 0

Object event: the leading object to specify an animal traceability event.

*Product* : tracking an animal, individual or animal batch identifier

*Activity code*: not applicable

(but could be optional for

ADD	>	born
REMOVE	>	death
OBSERVE	>	all other life events)

*Biz step*: to be defined for breeding, fattening, transport, catch, butchering, loading, unloading, arrival, departure.

*Disposition*: not applicable in tracking animals, except in case of fish or animal products. Maybe possible to use for life animals in case of illness and not ready/fit for movement or transport from or to a location, or not fit for slaughter.

*Readpoint*: the location where the event is recorded by a person or a device.

Many times the read point will be similar to the biz location. But can be different, more detailed depending on the action.

For example the readpoint can be the device of the cargo door of the truck, where is recorded which animal is loaded or unloaded. The readpoint belongs then to the truck, while the biz location can be the farm, the holding or premise, or a dedicated barn or section on that premise.

*Biz location*: the location of the event. At level 1 and level 2 the biz location is referred to as *referenced.location*, the structured address or geographical coordinate.

*Aggregation event*: is only to be used in case of aggregating batches of animals.

*Transaction event*: can be used only in case of aggregation or disassembling a batch.

The aggregation event does not support disassembling of batches. In most processing industry batches are not disassembled. It is usually one way aggregation of products.

**Transformation event:** not applicable for life animals but for fish it can be useful to use.

Also relevant at the slaughterhouse, where the animal is processed into 1, 2 or more pieces of meat and other products. (slaughter, cutting )

*Quantity:* indicates the number of objects in the object class event. This indicates the number of animals in a animal batch. In level 1 represented for fish: batch\_catch unit and weight, in level 2 animal batch, calibre, weight, fish catch\_characteristics and batch catch.

*Biz transaction:* the type of biz transaction

The biz transaction is not relevant at level 1 or level 2. At level 1 it is defined indirectly, by the animal location event, animal shipping or the T&T batch catch. At level 2 it is defined by the animal holding event, animal movement, T&T batch catch, animal shipping and transport event.

*Source and Destination:* contains an identifier and type.

At level 1 and level 2 this refers to the:

- referenced location,
- structured address,
- geographical area;
- technical character;
- id carrier of the transport means;
- vessel transport means.

Level 0 has a different abstract level compared to level 1 and 2. Level 0 is very general for all types of products, over the whole product lifecycle, all processing steps from the raw material source up to the point of sale of the end product.

The object entities (BIEs , ABIEs and ASBIEs) are not defined specifically for tracking and tracing of life animal or fish.

The types of events in T&T animals and fish are (more or less) limited to:

- Birth, arrival, departure, death, caught;
- Create, assemble, disassemble or end a batch;
- Transport of an animal or group of animals on a transport means;

Locations can be: holding, premise, market place, restplace, slaughterhouse; transport devices / vessels; ocean regions and other geographical regions.

Tracking event : { animal, location; party ; transport means; action; date time }

