



THE GLOBAL STANDARD
FOR LIVESTOCK DATA

Procedure 3 of Section 15 of ICAR Guidelines – Animal Data

Procedure 3 – Animal Data

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Summary of Changes

Date of Change	Nature of Change
July 2018	New procedure created from methodology chapter in Section 15 Overview. Replaced by new version from ADE-WG. Template applied.

1 Introduction

A carefully maintained list of animals in the herd is a prerequisite of reliable animal recording. The animal lists on the equipment and on the farm management system are likely to be different because of:

- a. Different input sources (manual maintenance by farmer, legal registration in the farm management system)
- b. Different availability of data

The business process “Exchange of Animal Data” is designed to

- c. initialize the database of the equipment or herd management system
- d. propagate new or changed data to or from the farm management system
- e. help detecting data conflicts earlier

It provides several methods designed to help synchronizing the equipment data base and the farm management database without efforts:

- a. **GetHerdList**: Initialize animal lists on the equipment or herd management system
- b. **GetAnimal**: Request animal descriptions from the service provider
- c. **UpdateAnimal**: Send animal description changes to the service provider
- d. **GetArrival**: Request animal arrival changes from the service provider
- e. **UpdateArrival**: Send animal arrival changes to the service provider
- f. **GetDeparture**: Request animal departure changes from the service provider
- g. **UpdateDeparture**: Send animal departure changes to the service provider

The service descriptions follow the principals described in “Guideline A Methodology” and reuse the basic elements defined there.

The complete description of the codelists referenced here can be found in the Annex document.

2 Definitions and Terminology

Table 1 contains a list of important definitions for terms and abbreviations used in these guidelines.

Table 1. Definitions of Terms used in these guidelines.

Term	Definition

3 Scope

Figure 1 gives a pictorial summary of the main elements of this procedure. The numbers in this figure refer to the heading numbers of this procedure.

Figure 1. Scope of Guideline.



4 Common Components

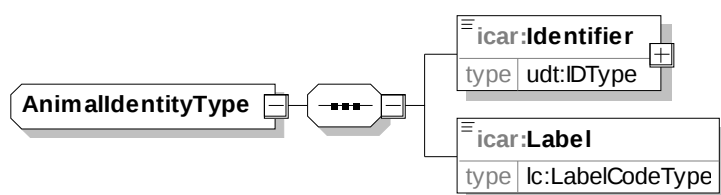
4.1 AnimalIdentityType

The entity gives official (official ear tag numbers etc.) and alternative animal identification used by farmers, equipment (farm number, necklace number, animal name etc.)

Only official identifiers should be used as primary identifier for data exchange. Alternative identifiers are used to detect changes of names or on farm numbers in addition to the AnimalID. At robot level farmers often work with on farm numbers or names which can be reused for other animals and cause errors in the identification of samples.

Alternative identification should be never used as the primary identifier for data exchange.

Figure 2 AnimalIdentityType

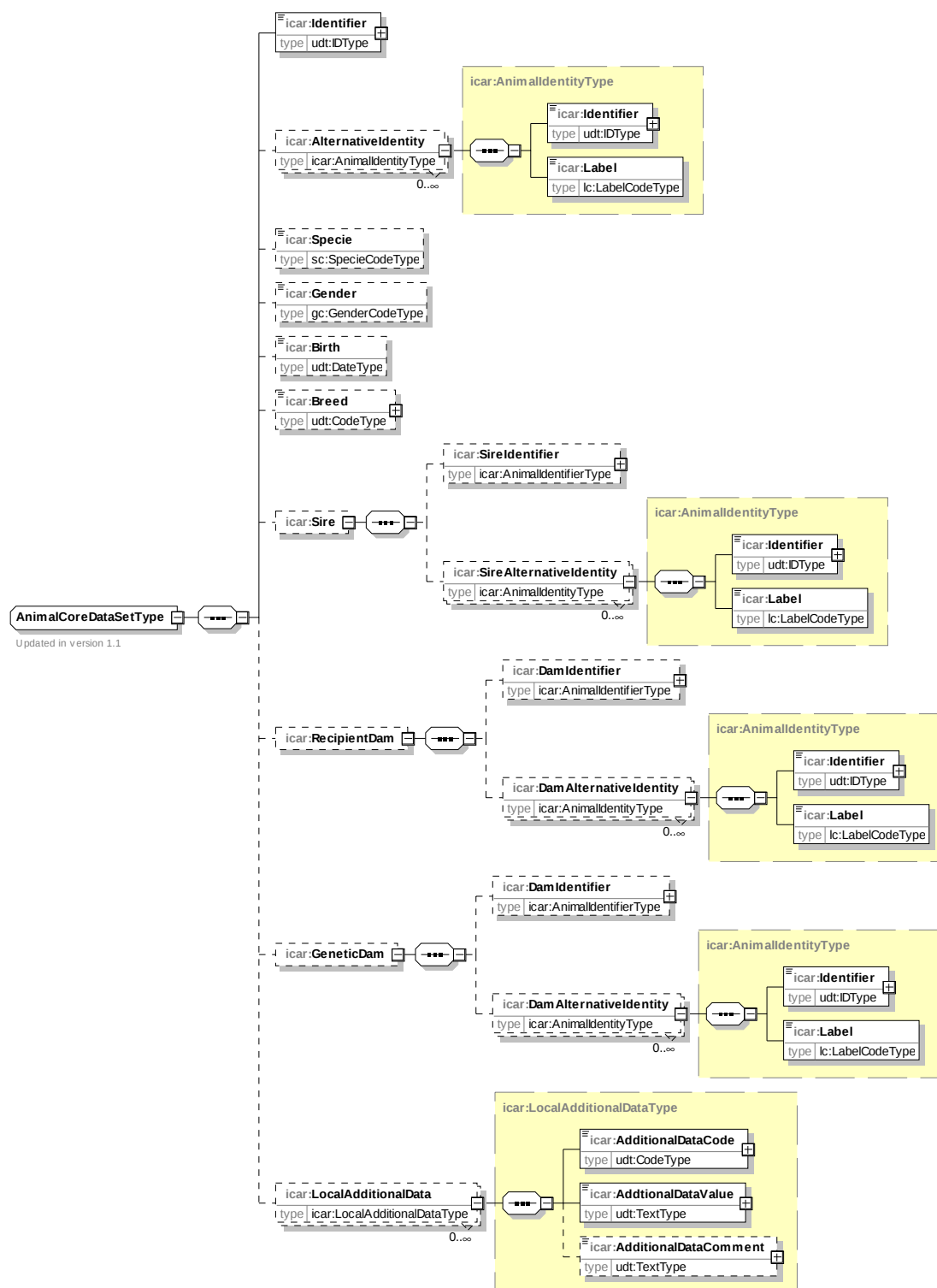


- **Identifier:** Alternative animal identifier
- **Label:** Type of alternative animal identifier according to code list **LabelCode**

4.2 AnimalCoreDataSetType

The entity gives the core characteristics of a given animal.

Figure 3 *AnimalCoreDataSetType*



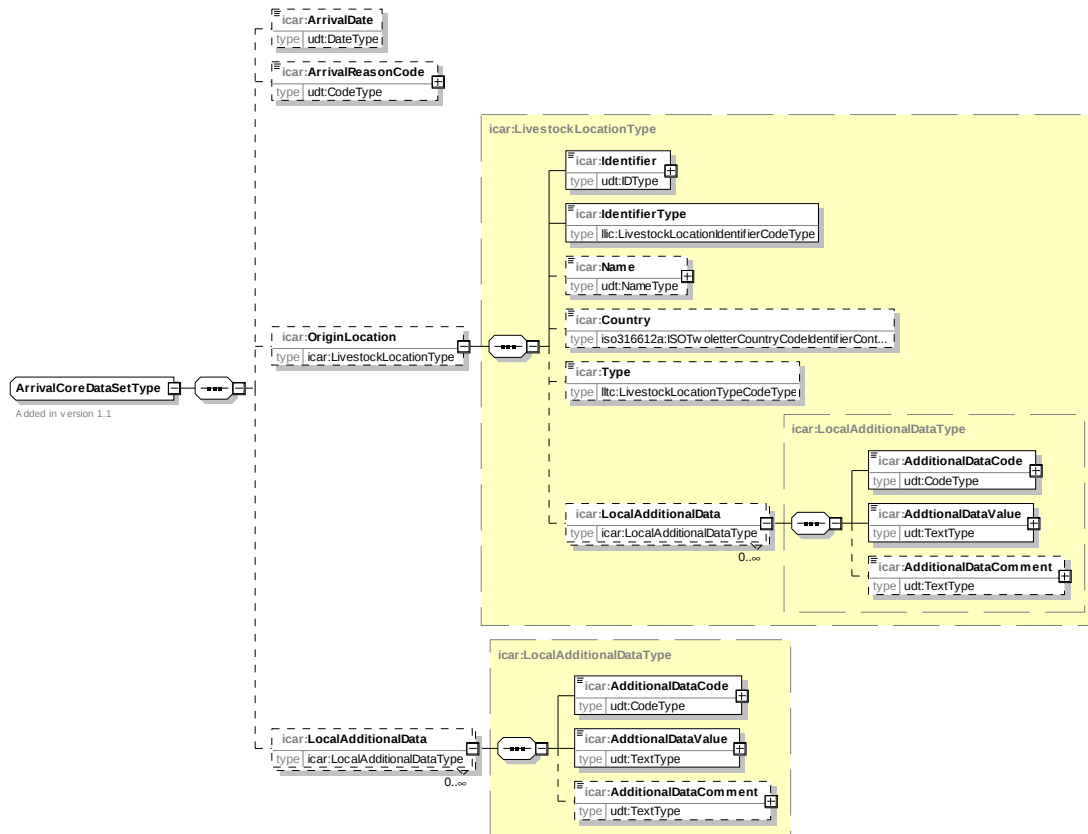
- a. **Identifier:** primary unique identifier of an animal
- b. **AlternativeIdentity:** secondary animal identifiers
- c. **Specie:** Specie of the animal
- d. **Gender:** Gender of the animal
- e. **Birth:** Birth date of the animal

- f. **Breed:** Local breed code of the animal
- g. **Sire:** Sire description entity
 - **SireIdentifier:** Animal identifier of the sire
 - **SireAlternativeIdentity:** Alternative animal identifiers of the sire
- h. **RecipientDam:** receiving dam description entity in case of embryo transfer
 - **RecipientDamIdentifier:** Animal identifier of the receiving dam
 - **RecipientDamAlternativeIdentity:** Alternative animal identifiers of the receiving dam
- i. **GeneticDam:** genetic dam description entity in case
 - **GeneticDamIdentifier:** Animal identifier of the genetic dam
 - **GeneticDamAlternativeIdentity:** Alternative animal identifiers of the genetic dam

4.3 ArrivalCoreDataSetType

The entity gives the core characteristics of an animal arrival to a location.

Figure 4 ArrivalCoreDataSetType

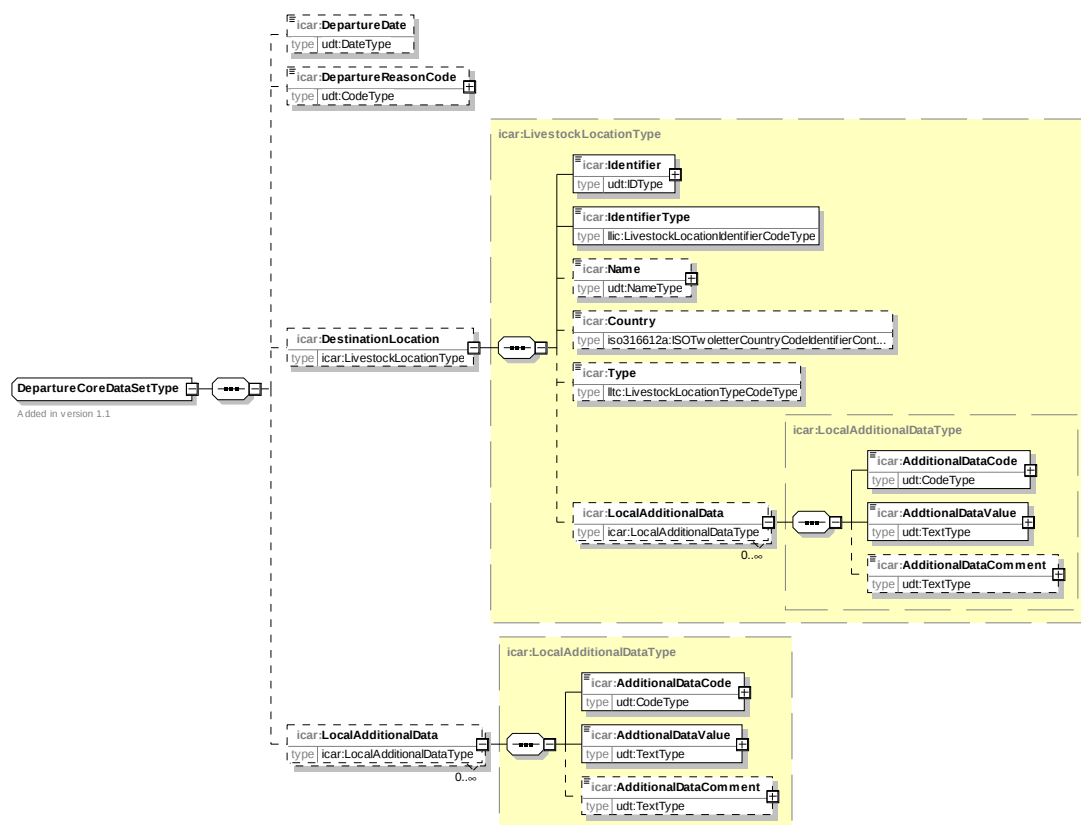


- a. **ArrivalDate**: Date of the arrival of the animal
- b. **ArrivalReasonCode**: local code specifying the reason of the arrival
- c. **OriginLocation**: The location the animal is arriving from
- d. **LocalAdditionalData**: List of locally defined code/value pairs

4.4 DepartureCoreDataSetType

The component gives the core characteristics of an animal departure from a location.

Figure 5 DepartureCoreDataSetType

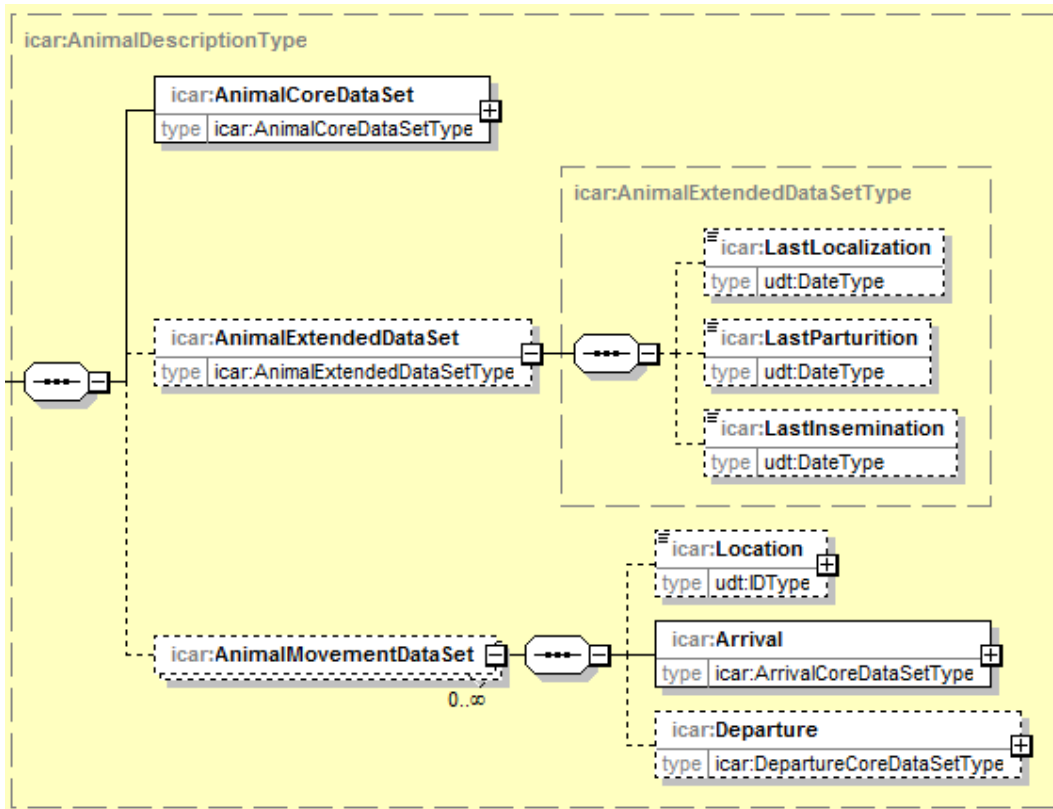


- DepartureDate**: Date of the departure of the animal
- DepartureReasonCode**: local code specifying the reason of the departure
- DestinationLocation**: The location the animal is departing to
- LocalAdditionalData**: List of locally defined code/value pairs

4.5 AnimalDescriptionType

The component conveys the description of an animal. Currently it comprises core data, extended data and movement data.

Figure 6 AnimalDescriptionType

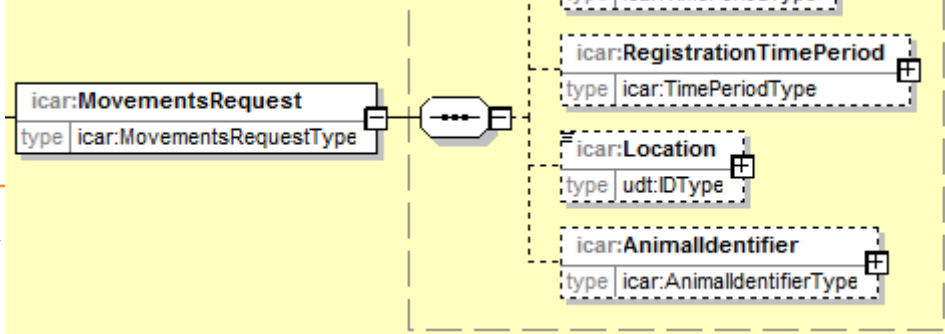


- a. **AnimalCoreDataSet**: Core description of an animal (for details see entity description in section “Common Components.AnimalCoreDataSetType” above)
- b. **AnimalExtendedDataSet**: Conveys the optional elements
 - **LastLocalization**: date of last arrival of the animal on the location
 - **LastParturition**: last recorded parturition of the animal
 - **LastInsemination**: last recorded insemination of the animal
- c. **AnimalMovementDataSet**: List of the animal’s movements
 - **Location**: A location on which the animal has been registered
 - **Arrival**: Conveys the arrival details of the animal on this location (see entity description in section “Common Components.ArrivalCoreDataSetType” above)
 - **Departure**: Conveys the departure details of the animal on this location (see entity description in section “Common Components.DepartureCoreDataSetType” above)

4.6 MovementRequest

The entity **MovementsRequest** (see diagram below) is designed to provide optional parameters which can be used to control the size of the result of a movement response.

It is e.g. used



- EventTimePeriod:** Limit the extend of the response to the given period of arrival event
(see entity description in section “Common entities”, ”TimePeriodType” above)
- RegistrationTimePeriod:** Limit the extend of the response to the given period of the registration of arrival events
(see entity description in section “Common entities”, ”TimePeriodType” above)
- Location:** If provided the extend of the response will be limited to the animals registered for this (sub)location. With the parameter missing the service provider has to deduce the location from the login credentials or can reject the request.
- AnimalIdentifier:** If provided the extend of the response will be limited to the arrivals of the given animal.

5 Exchange of Herd List

5.1 Service Description: GetHerdList

5.1.1 Purpose

To allow the owner of the equipment to retrieve the animal herd list including animal movement data and recent reproduction events like last calving and last insemination.

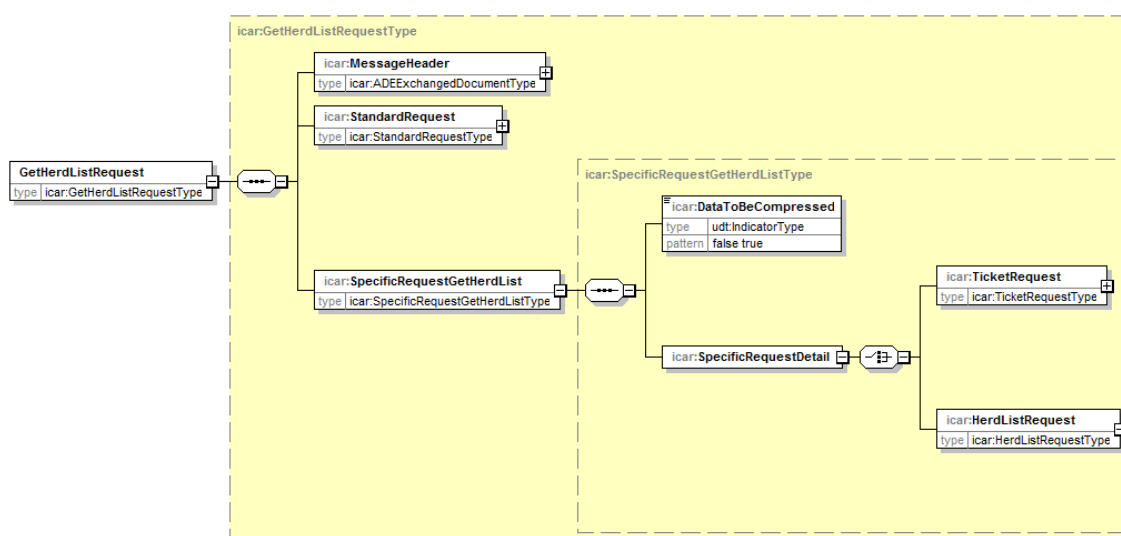
The result size can be narrowed by providing request parameters like location, gender and a period of time.

5.1.2 Request description

Message GetHerdListRequest (see diagram below) is in compliance with the general specifications for requests (see General specifications / Request specifications).

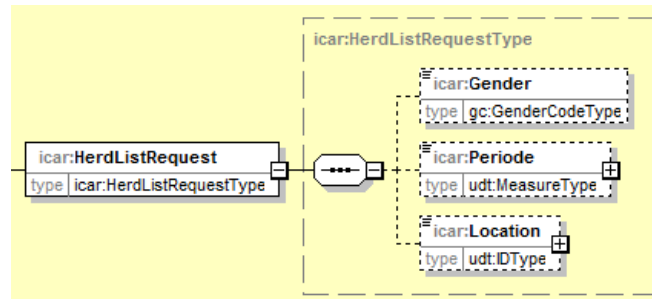
It is used to request the herd list for a given location stored in the farm management system.

Figure 8 GetHerdListRequest



The extend of the result can be controlled by providing optional parameters (see diagram below):

Figure 9 HerdListRequest

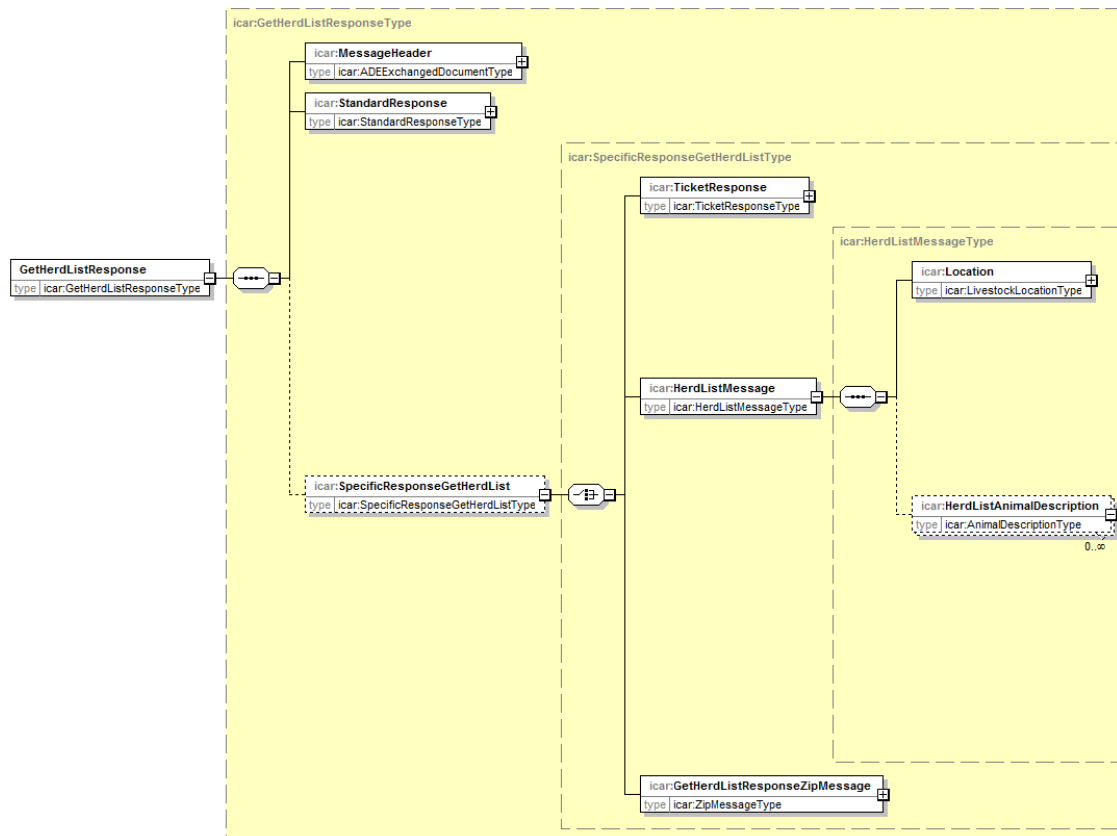


- a. **Gender:** restrict herd list results to male or female animals
- b. **Periode:** If provided the result will include also data from the herd's history within the period range to be interpreted as days. With the parameter missing or of value 0 the herd list result will convey only the animals currently in the herd
- c. **Location:** If provided the herd list result will be restricted to the animals registered for this (sub)location. With the parameter missing the service provider has to deduce the location from the login credentials or can reject the request.

5.1.3 Response description

Message **GetHerdListResponse** (see diagram below) is in compliance with the general specifications for results (see General specifications / Response specifications)

Figure 10 GetHerdListResponse



The result data container **HerdListMessage** conveys the **Location** descriptor and a list of animal descriptions in **HerdListAnimalDescription** of type **AnimalDescription** (for details see entity description in section “**Common Components.AnimalDescriptionType**” above).

5.2 Service Description: UpdateHerdList

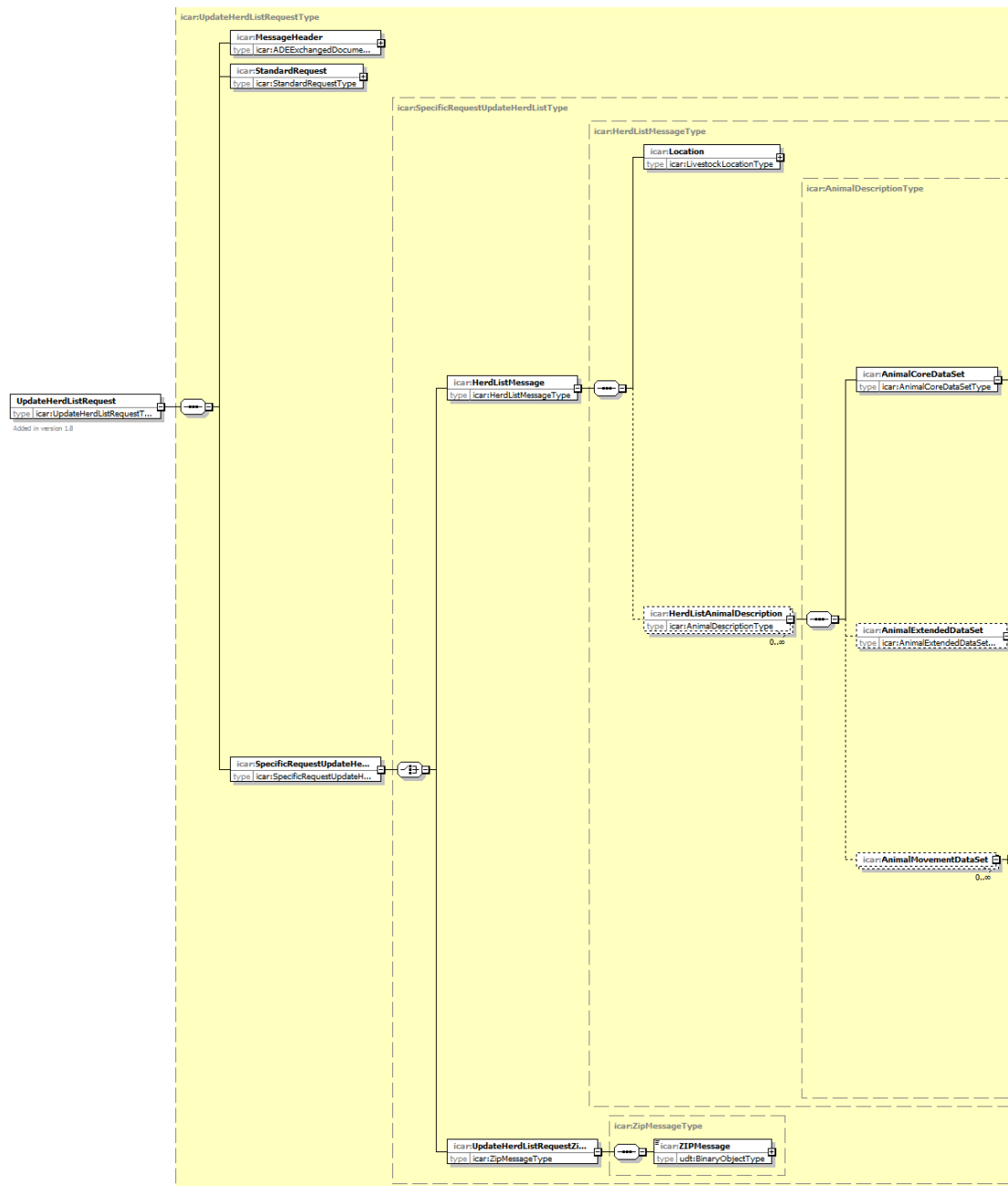
5.2.1 Purpose

To allow the owner of the equipment to send changes in the animal herd list including animal movement data and recent reproduction events like last calving and last insemination to the service provider.

5.2.2 Request description

Message **UpdateHerdListRequest** (see diagram below) is in compliance with the general specifications for requests (see General specifications / Request specifications).

Figure 11 UpdateHerdListRequest



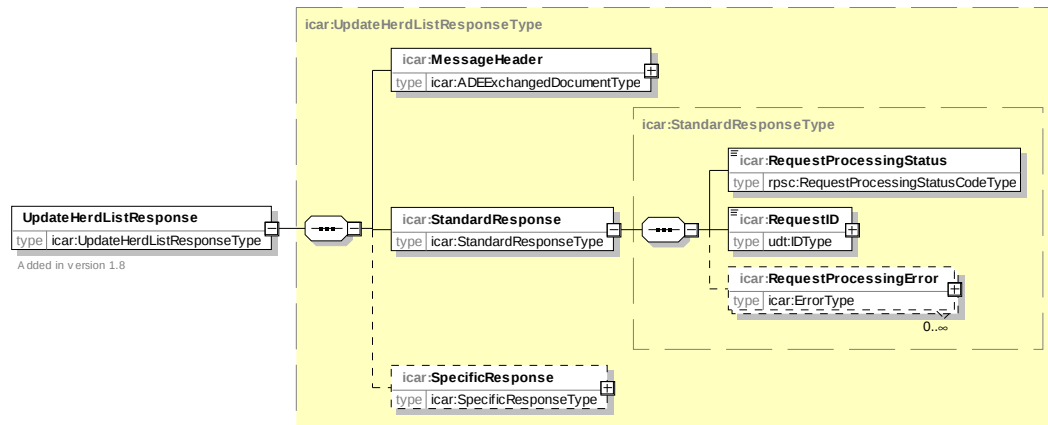
The container **HerdListMessage** conveys the **Location** descriptor and a list of animal descriptions to be processed at the service provider in **HerdListAnimalDescription** of type **AnimalDescription** (for details see entity description in section “**Common Components.AnimalDescriptionType**” above).

5.2.3 Response description

Message **UpdateHerdListResponse** (see diagram below) is in compliance with the general specifications for requests (see General specifications / Response specifications)

It is used to receive the status of herd list data processing by the service provider.

Figure 12 UpdateHerdListResponse



6 Exchange of Animal Core Information

6.1 Service Description: GetAnimal

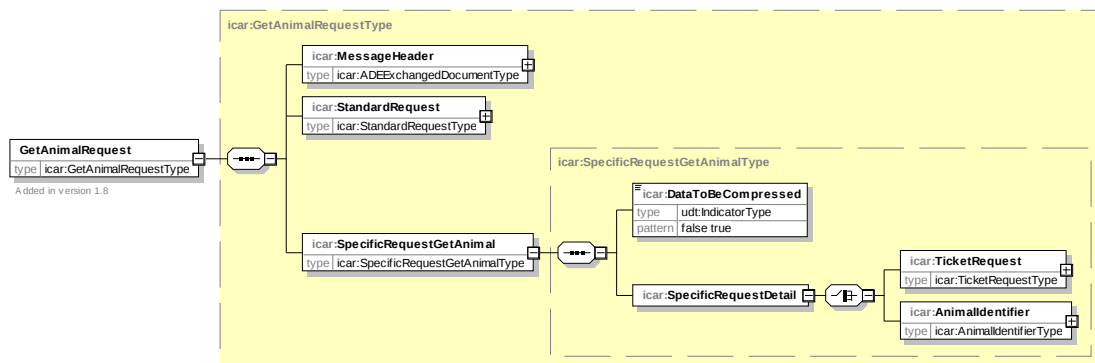
6.1.1 Purpose

The service **GetAnimal** allows the equipment to retrieve animal core information from the farm management system.

6.1.2 Request description

Message **GetAnimalRequest** (see diagram below) is in compliance with the general specifications for requests (see General specifications / Request specifications). It is used to request the core data describing an animal stored in the farm management system.

Figure 13 GetAnimalRequest



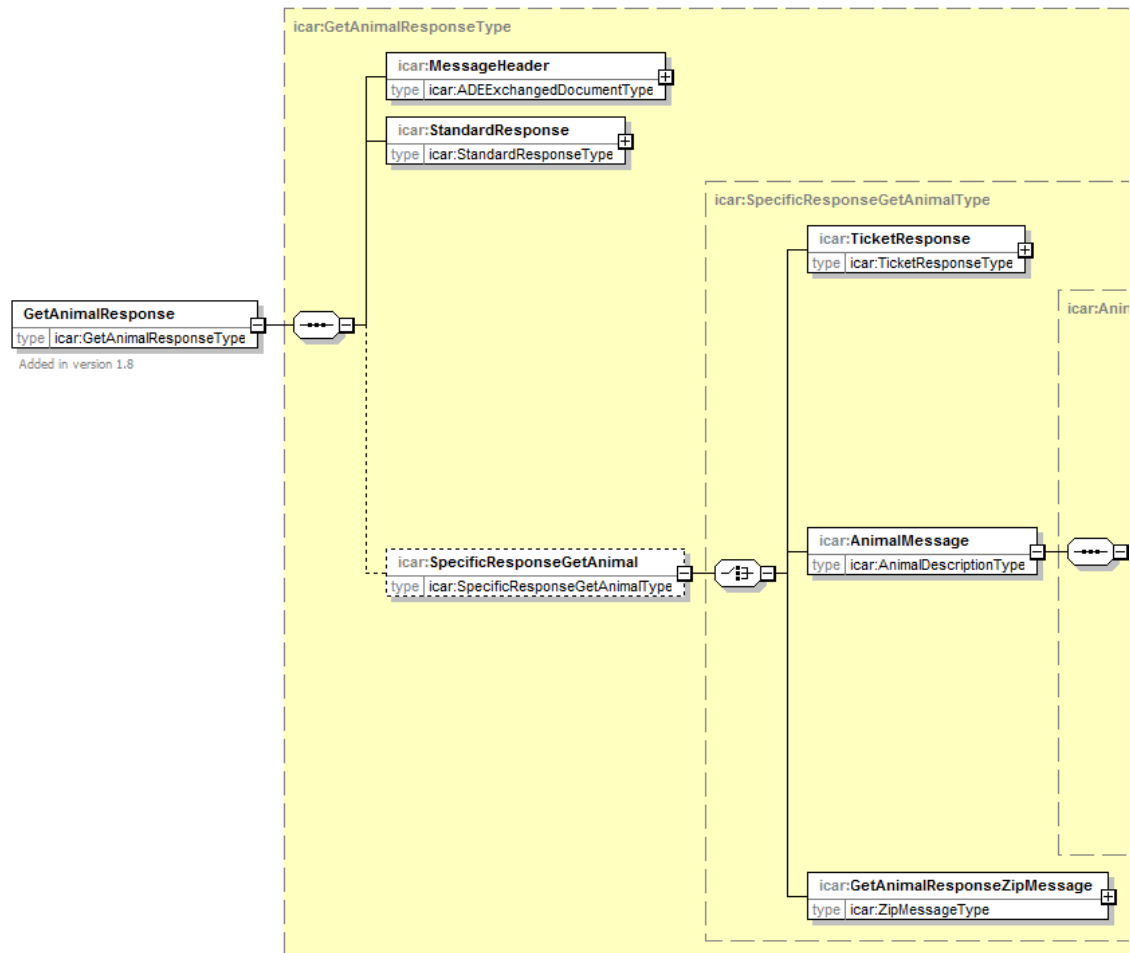
AnimalIdentifier: the identifier of the animal for which the data is requested

6.1.3 Response description

Message **GetAnimalResponse** (see diagram below) is in compliance with the general specifications for results (see General specifications / Response specifications).

It conveys the animal core data for an animal specified by the request parameter **AnimalIdentifier**.

Figure 14 GetAnimalResponse



AnimalMessage: conveys the animal descriptions for the requested animal using type **AnimalDescription** (for details see entity description in section “**Common Components.AnimalDescriptionType**” above).

6.2 Service Description: UpdateAnimal

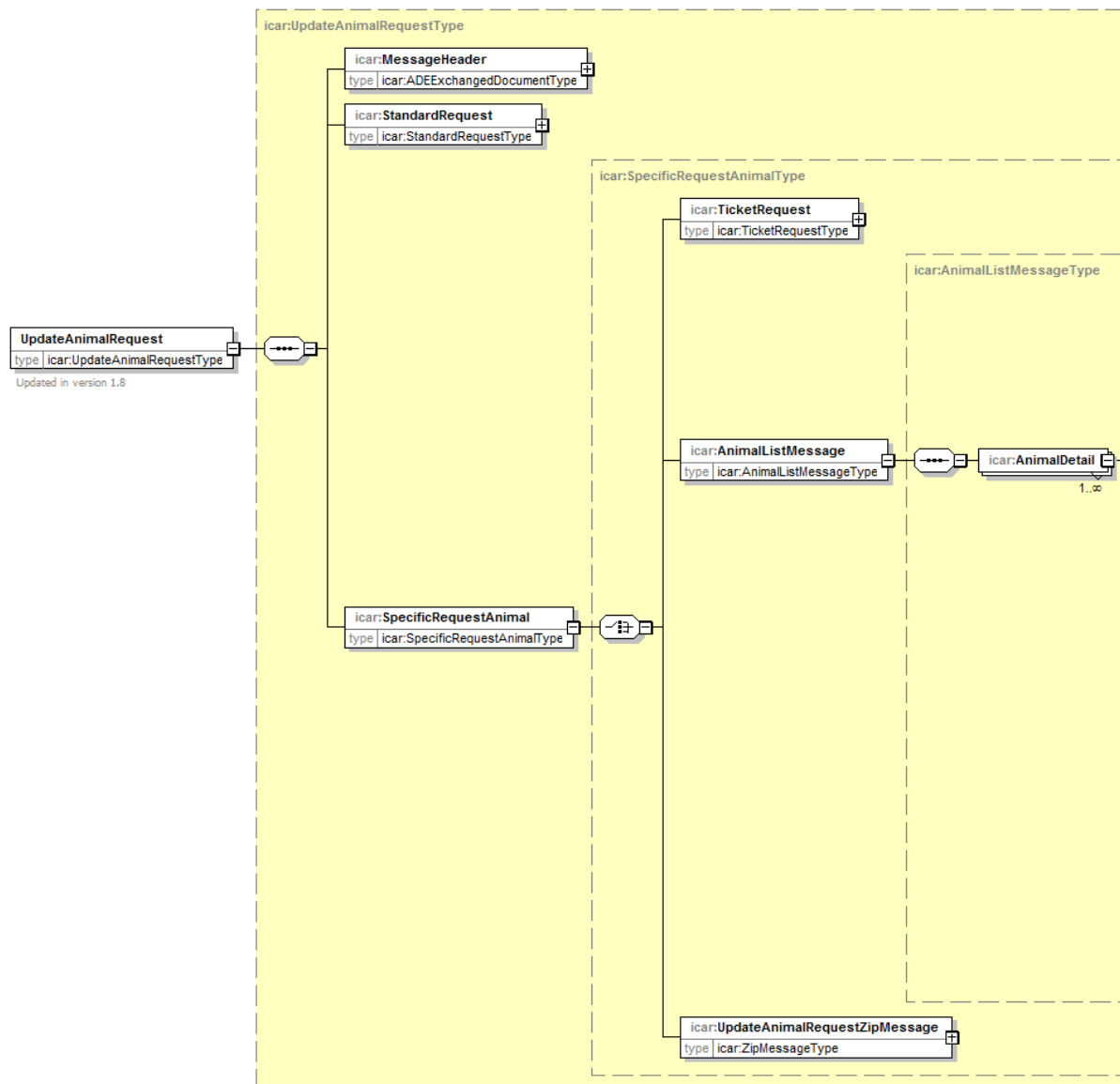
6.2.1 Purpose

The service **UpdateAnimal** allows the equipment to send information describing a list of animals to the farm management system.

6.2.2 Request description

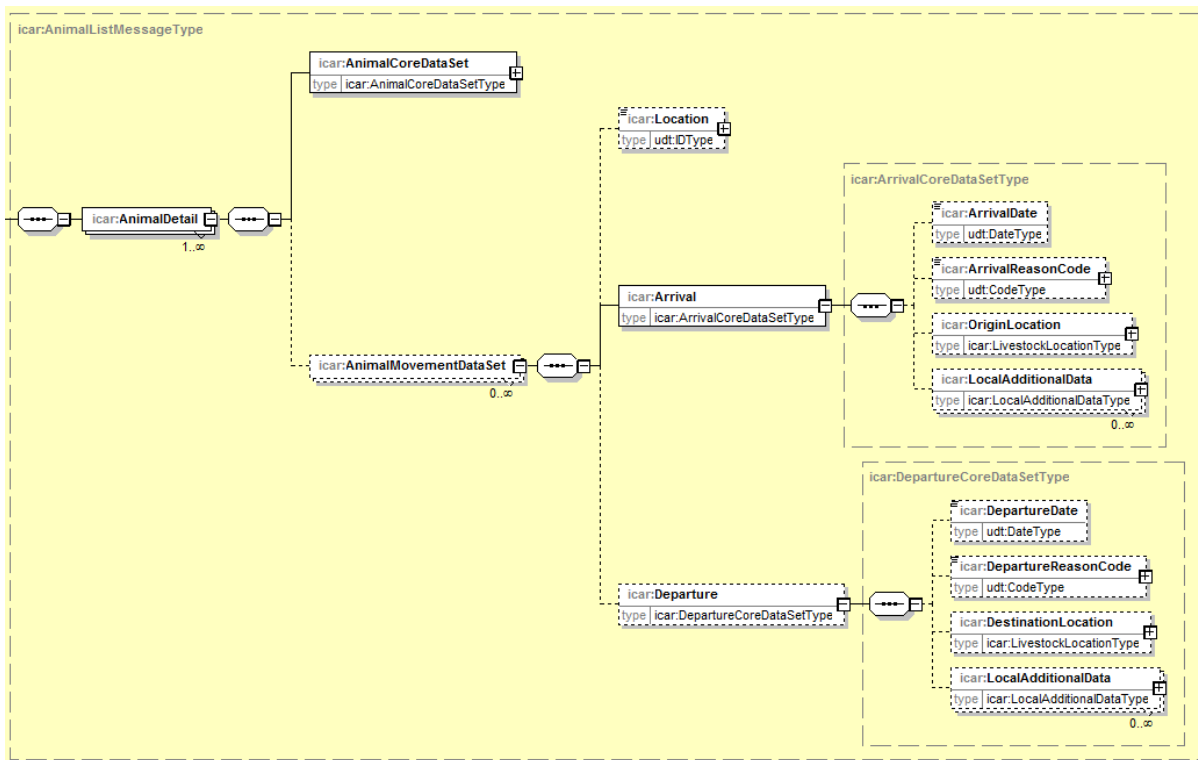
Message **UpdateAnimalRequest** (see diagram below) is in compliance with the general specifications for requests (see General specifications / Request specifications).

Figure 15 UpdateAnimalResponse



AnimalListMessage: A list of **AnimalData** components of type **AnimalListMessageType** conveying the details of animals currently managed by the equipment

Figure 16 *AnimalListMessageType*



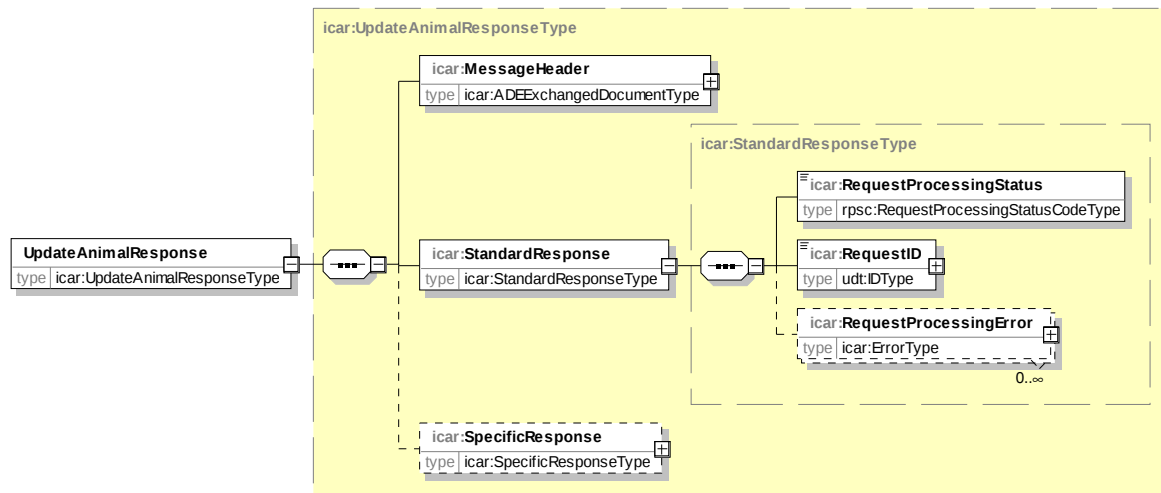
- a. **AnimalCoreDataSet:** Core description of an animal (for details see entity description in section “Common Components.AnimalCoreDataSetType” above)
- b. **AnimalMovementDataSet:** A list of animal movement information known to the equipment
- c. **Location:** The location of the animal
- d. **ArrivalCoreDataSet:** The details of the animal’s arrival in this location. (see entity description in section “Common Components.ArrivalCoreDataSetType” above)
- e. **DepartureCoreDataSet:** The details of the animal’s departure from this location. (see entity description in section “Common Components.DepartureCoreDataSetType” above)

6.2.3 Response description

Message **UpdateAnimalResponse** (see diagram below) is in compliance with the general specifications for requests (see General specifications / Response specifications)

It is used to receive the status of animal data processing by the service provider.

Figure 17 UpdateAnimalResponse



7 Exchange of Animal Arrival in Herd

7.1 Service Description: GetArrivals

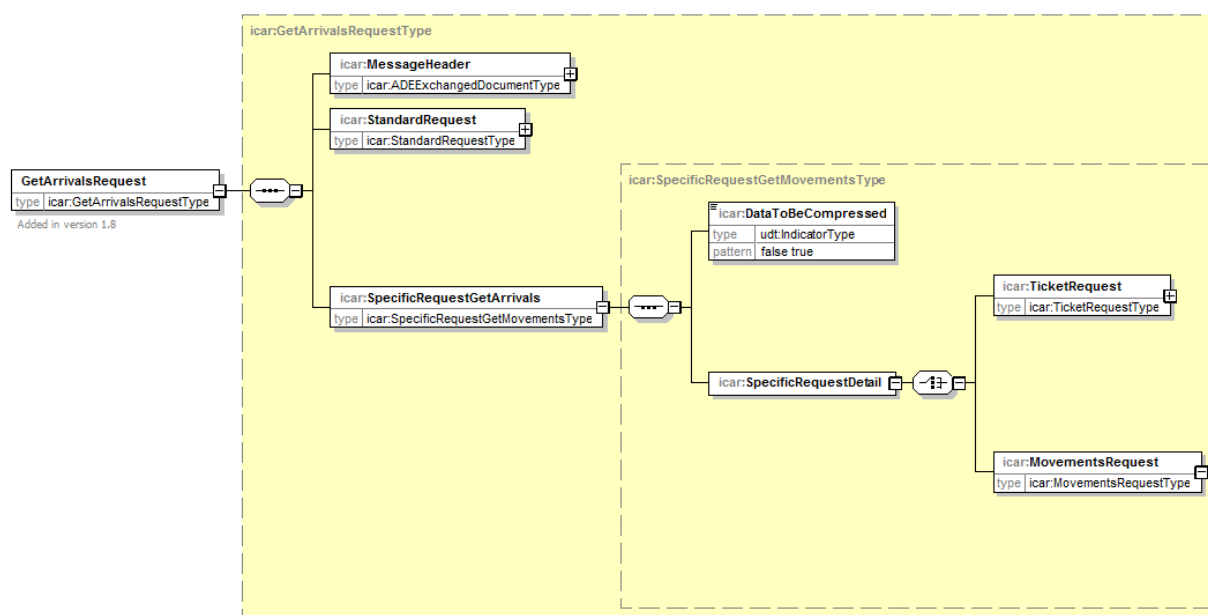
7.1.1 Purpose

The service **GetArrivals** allows the owner of the equipment to retrieve the arrivals of animals for a given location, animal and/or period.

7.1.2 Request description

Message **GetArrivalsRequest** (see diagram below) is in compliance with the general specifications for requests (see General specifications / Request specifications). It is used to request the list of animal arrivals stored in the farm management system.

Figure 18 GetArrivalRequest



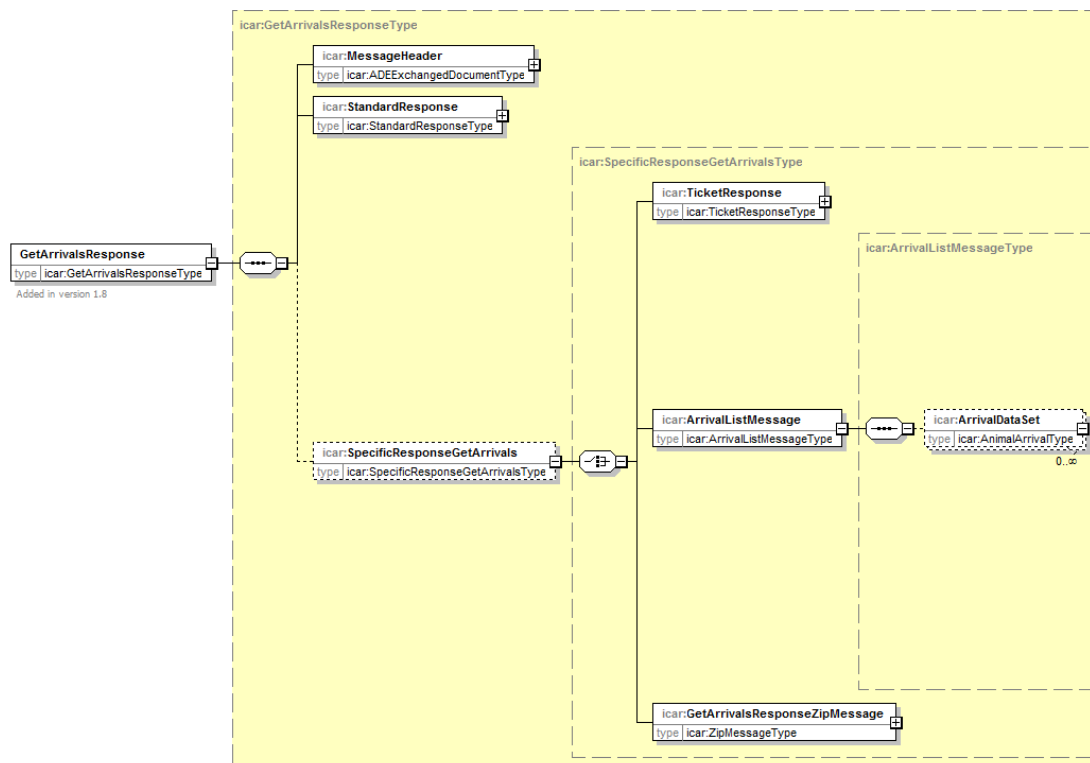
The size of the result can be controlled by providing optional parameters in the entity MovementsRequest (see description in section “Common Components” above).

7.1.3 Response description

Message **GetArrivalsResponse** (see diagram below) is in compliance with the general specifications for results (see General specifications / Response specifications).

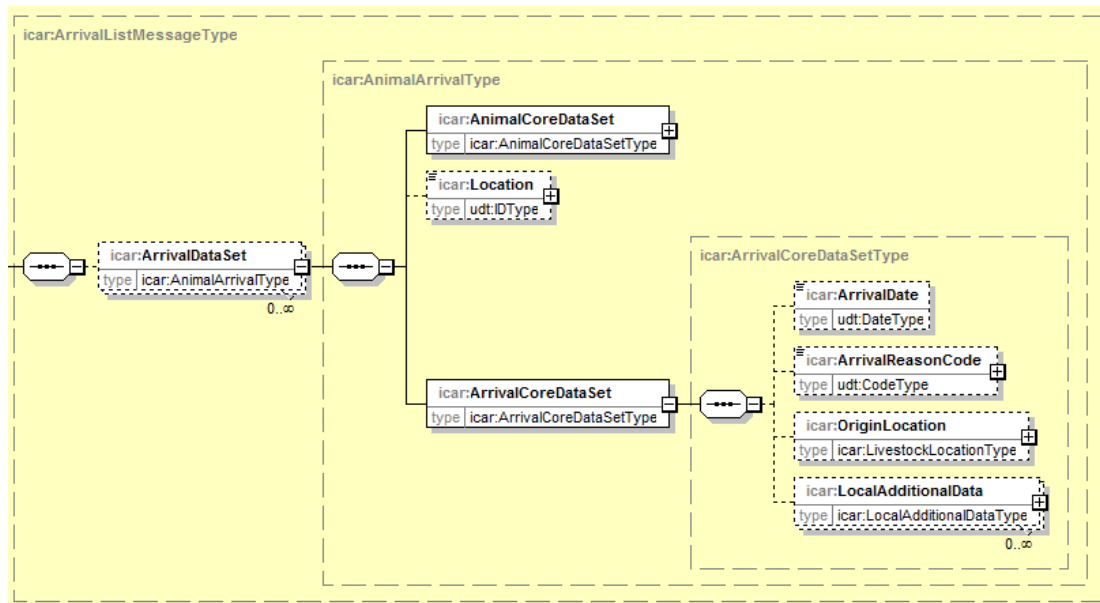
It provides a list of arrival data sets registered in the farm management system limited by the request parameters.

Figure 19 GetArrivalResponse



- a. **ArrivalListMessage**: List of animal arrival events conveyed as **ArrivalDataSetType**

Figure 20 ArrivalDataSet



- a. **AnimalCoreDataSet:** Core description of an animal (for details see entity description in section “Common Components.AnimalCoreDataSetType” above)
- b. **Location:** The location of arrival
- c. **ArrivalCoreDataSet:** It conveys the details of an animal arrival. (see entity description in section “Common Components.ArrivalCoreDataSetType” above)

7.2 Service Description: UpdateArrivals

7.2.1 Purpose

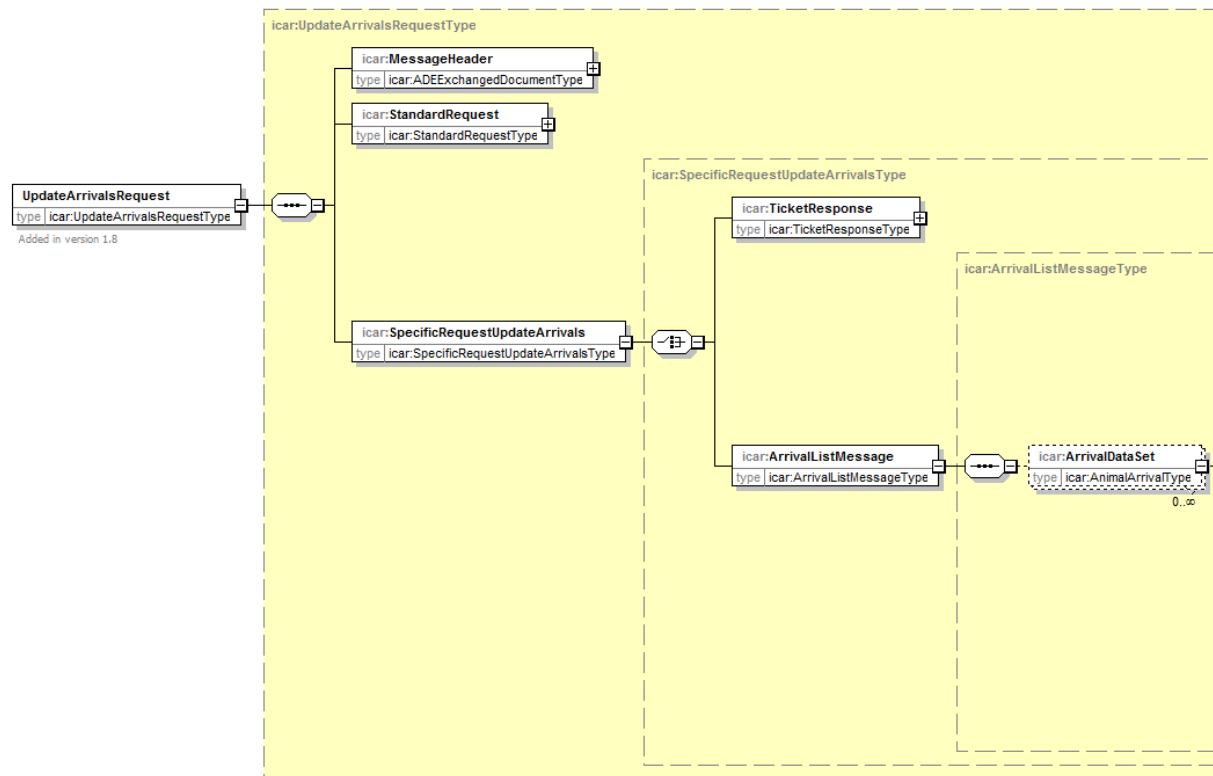
The service **UpdateArrivals** is designed for registering new or updated animal arrival events in the farm management system.

7.2.2 Request description

Message **UpdateArrivalsRequest** (see diagram below) is in compliance with the general specifications for requests (see General specifications / Request specifications).

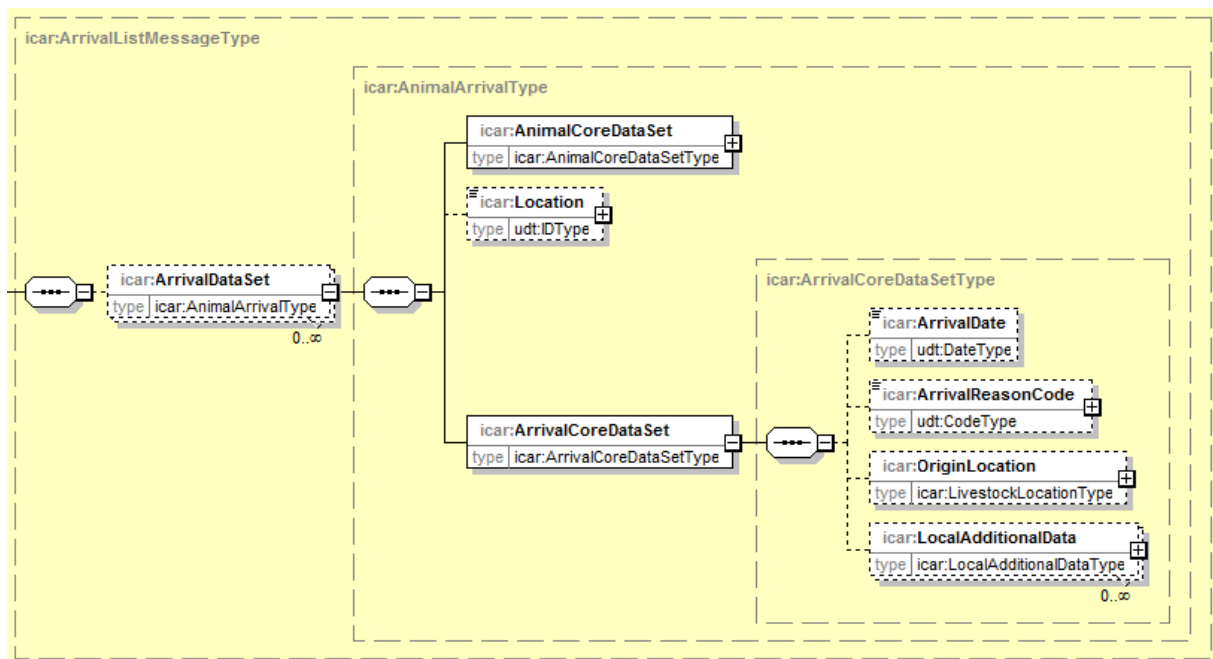
A list of arrival events is transferred to the service provider.

Figure 21 UpdateArrivalRequest



- a. **ArrivalListMessage**: List of animal arrival events conveyed as **ArrivalDataSetType**

Figure 22 ArrivalDataSet



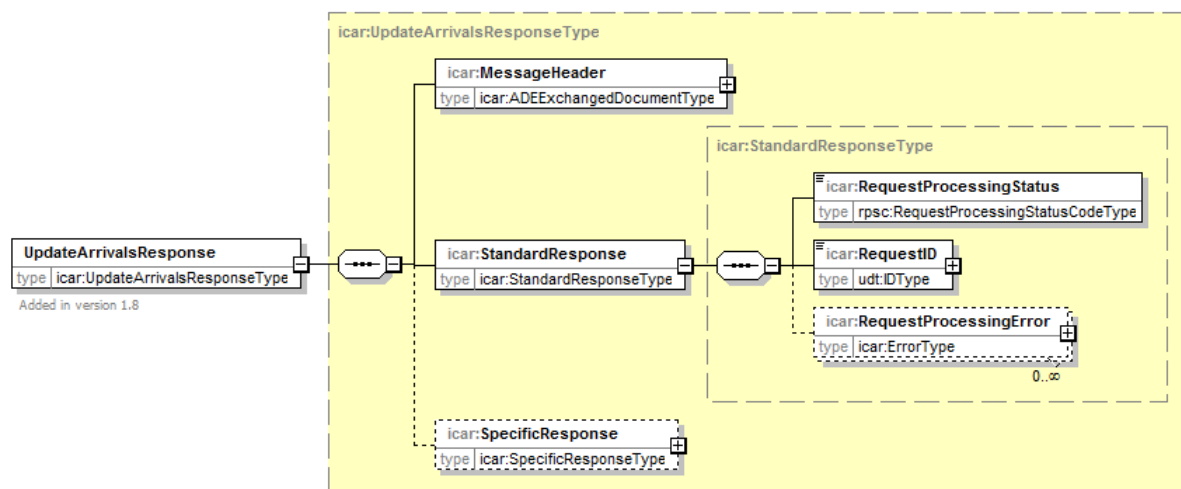
- a. **AnimalCoreDataSet:** Core description of an animal (for details see entity description in section “Common Components.AnimalCoreDataSetType” above)
- b. **Location:** The location of arrival
- c. **ArrivalCoreDataSet:** It conveys the details of an animal arrival. (see entity description in section “Common Components.ArrivalCoreDataSetType” above)

7.2.3 Response description

Message UpdateArrivalsResponse (see diagram below) is in compliance with the general specifications for requests (see General specifications / Response specifications)

It is used to receive the status of arrival events processing by the service provider.

Figure 23 UpdateArrivalResponse



8 Exchange of Animal Departure from Herd

8.1 Service Description: GetDepartures

8.1.1 Purpose

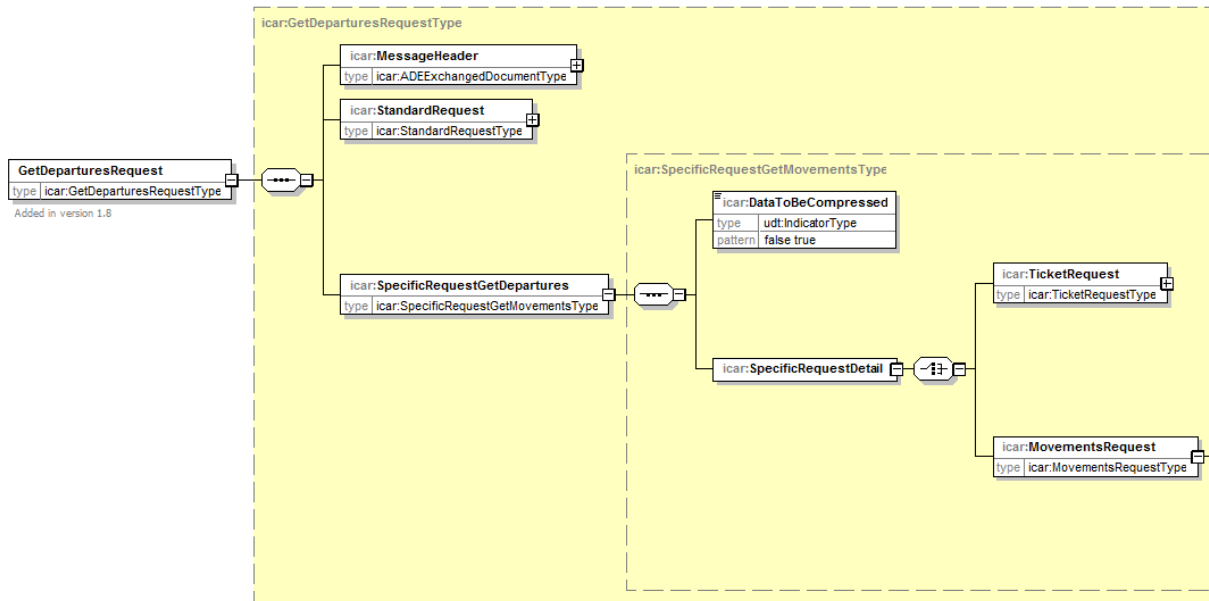
The service GetDepartures allows the owner of the equipment to retrieve the departures of animals for a given location, animal and/or period.

8.1.2 Request description

Message GetDepartureRequest (see diagram below) is in compliance with the general specifications for requests (see General specifications / Request specifications).

It is used to request the list of animal departures stored in the farm management system.

Figure 24 GetDepartureRequest



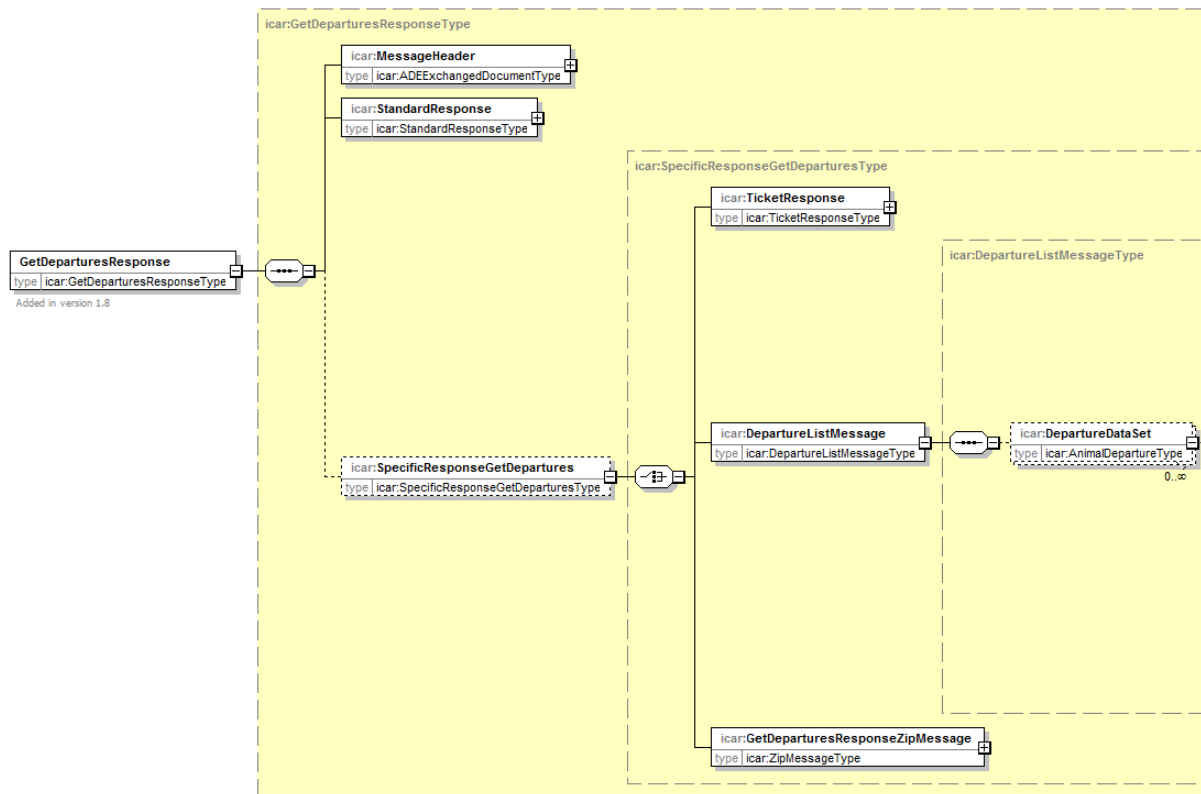
The size of the result can be controlled by providing optional parameters in the entity **MovementsRequest** (see description in section “Common Components” above).

8.1.3 Response description

Message **GetDepartureResponse** (see diagram below) is in compliance with the general specifications for results (see General specifications / Response specifications).

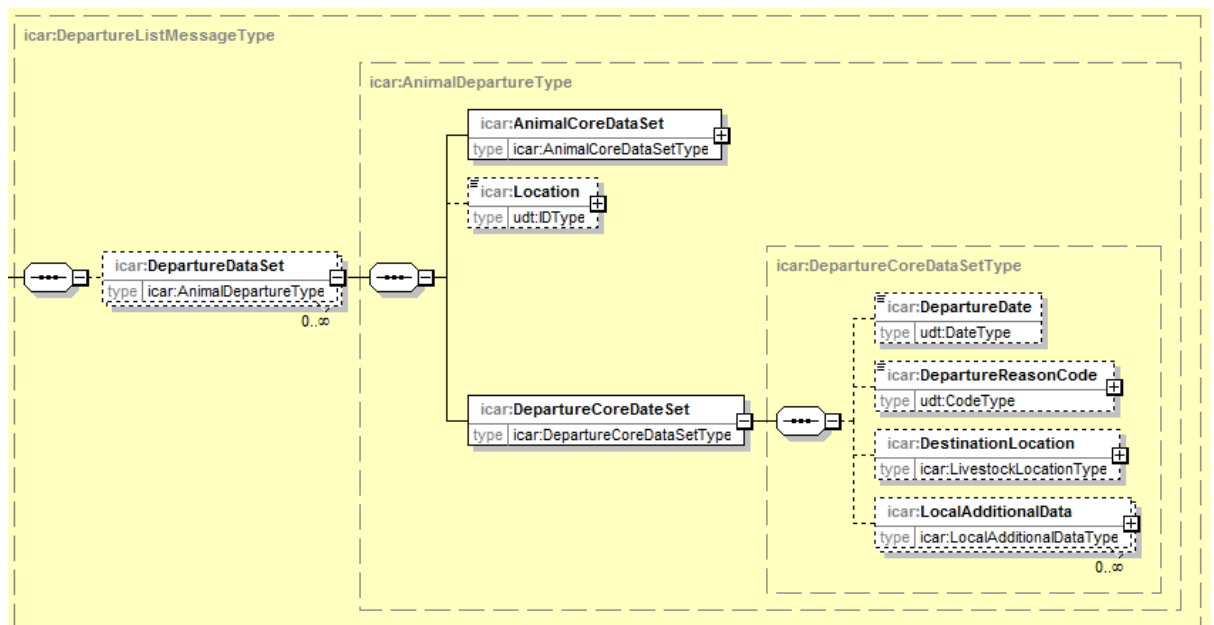
It provides a list of arrival data sets registered in the farm management system limited by the request parameters.

Figure 25 GetDepartureResponse



- a. **DepartureListMessage:** List of animal departure events conveyed as **DepartureDataSetType**

Figure 26 DepartureDataSet



- a. **AnimalCoreDataSet:** Core description of an animal (for details see entity description in section “Common Components.AnimalCoreDataSetType” above)
- b. **Location:** The location of arrival

DepartureCoreDataSet: It conveys the details of an animal arrival. (see entity description in section “Common Components.DepartureCoreDataSetType” above).

8.2 Service Description: UpdateDepartures

8.2.1 Purpose

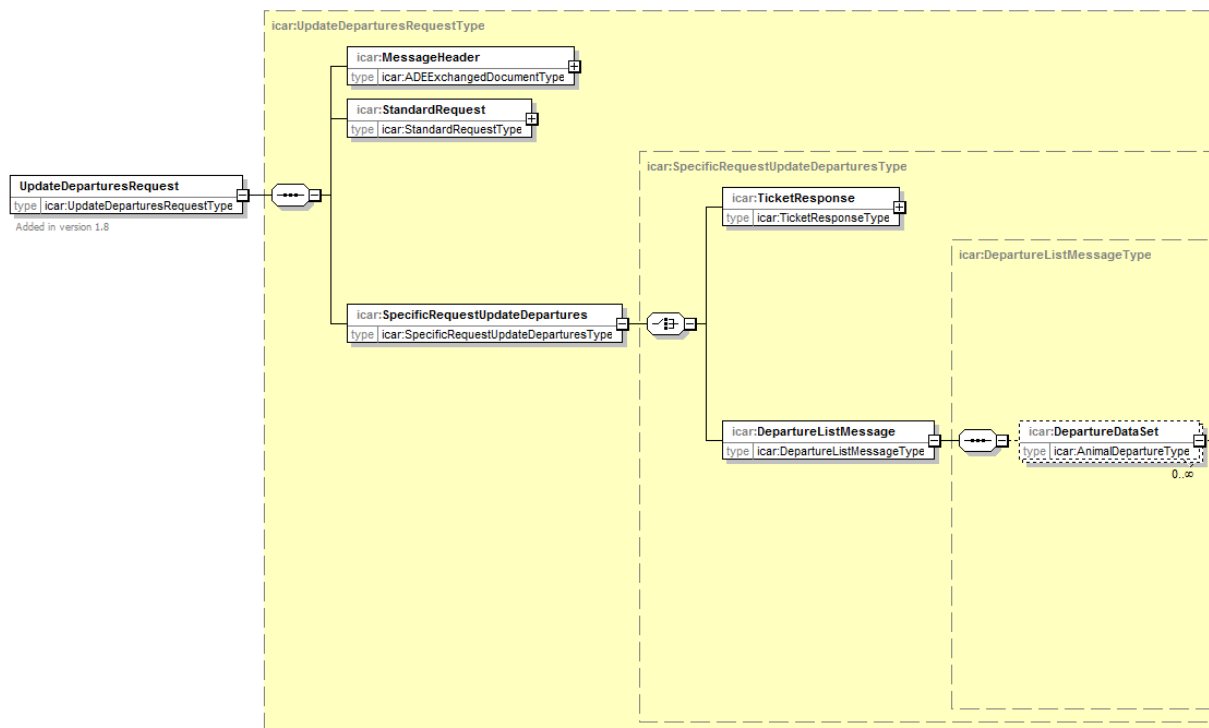
The service **UpdateDepartures** is designed for registering new or updated animal departure events in the farm management system.

8.2.2 Request description

Message **UpdateDeparturesRequest** (see diagram below) is in compliance with the general specifications for requests (see General specifications / Request specifications).

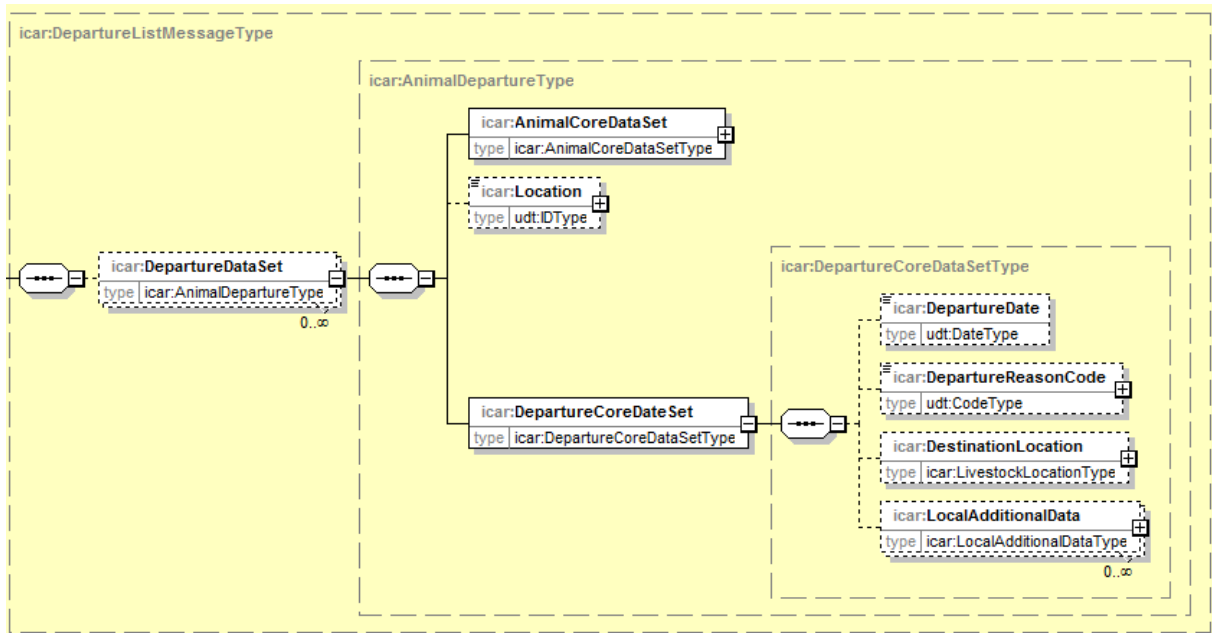
A list of departure events is transferred to the service provider.

Figure 27 UpdateDepartureRequest



- a. **DepartureListMessage:** List of animal arrival events conveyed as **DepartureDataSetType**

Figure 28 *DepartureDataSet*



- AnimalCoreDataSet:** Core description of an animal (for details see entity description in section “Common Components.AnimalCoreDataSetType” above)
- Location:** The location of arrival
- DepartureCoreDataSet:** It conveys the details of an animal arrival. (see entity description in section “Common Components.DepartureCoreDataSetType” above)

8.2.3 Response description

Message *UpdateDeparturesResponse* (see diagram below) is in compliance with the general specifications for requests (see General specifications / Response specifications)

It is used to receive the status of departure events processing by the service provider.

Figure 29 *UpdateDepartureResponse*

