

On-boarding as a client

Version 1.1

Version History

Version	Date	Comment
1.0	01.01.2021	Initial Version
1.1	20.02.2024	Updated Versions and reviewed content

Introduction

The iDDEN data exchange hub service is built using the ICAR Animal Data Exchange (ICAR ADE) standards to define the API data contracts scheme and the URL specifications.

The ICAR ADE standard is designed and defined by the ICAR technical working group in a public [GitHub project](#).

The current release of the iDDEN hub service is implemented using the latest v1.3 version of the [ICAR ADE standard](#).

This document contains information on the technical aspects of integration to the iDDEN system as a client application.

Principles

ICAR ADE standard

In order to be able to communicate with the iDDEN Hub data exchange service, the client application developers and technical designers need to have a good understanding of the ICAR ADE standard principles for both message definitions and URL specifications. The iDDEN functionality on both the API layer and the data integration layer are built using the ICAR ADE standard.

The ICAR ADE standard is not only used on the iDDEN API layer but also on the integration side of messages routing to the data provider server interfaces.

Please refer to the official [ICAR ADE project at GitHub](#) in order to get full details of the standard and a roadmap for upcoming work.

General data exchange flow

Step	Action
1	Client application invokes the right web service method for executing the action it needs to make.
2	Client application performs an authentication logon to the data provider authentication service. The returned security token will be used to authorize communication with iDDEN and the data provider systems.
3	iDDEN hub service checks that the client has the right to use the web service and if so, checks the data integrity: <ul style="list-style-type: none"> • If the message is well-formed and authentication is okay, proceed. • Otherwise an error message, in the user's language, with explanation is sent as a response. The response ends this use case.
4	iDDEN checks the targeted data provider used for data exchange and selects the adapter to process the request to the data provider interface. Additional adapters might be used if conversions are needed for different versions of ICAR ADE standard messages.
5	Data provider service receives the request from iDDEN. Data provider system will authenticate the request and processes the request: <ul style="list-style-type: none"> • If authentication or authorization fails, an error explanation in user's language is sent as a response • If the data provided by client is incorrect or incomplete in any way, an

	<p>error explanation in the user’s language is sent as a response</p> <ul style="list-style-type: none"> • If the data provided by client is correct and authentication / authorization exists, a response to the request is formed in the data provider system
6	iDDEN receives the response from data provider system.
7	iDDEN sends the response to the client
8	Client application processes the response according its own inner logic.

Authentication to iDDEN and data routing

To authenticate to the iDDEN Hub service, the client application needs to provide the identification of its organisation and a valid API key. This information needs to be provided in all requests to the iDDEN Hub service, since the authentication verification process is triggered during each data exchange request.

The authentication information needs to be provided inside the HTTP request custom (non-standard) headers. To route the request to the data provider, an iDDEN identifier to the target organization needs to be provided.

Header name	Purpose
iDDEN-ID	Official iDDEN identification of the client organisation software (see iDDEN Registration documentation)
iDDEN-API-KEY	Authentication API key registered for the client organisation software. The API key is provided when the organisation is registered
iDDEN-ID-TARGET	iDDEN identifier of the target data provider organisation for data exchange routing

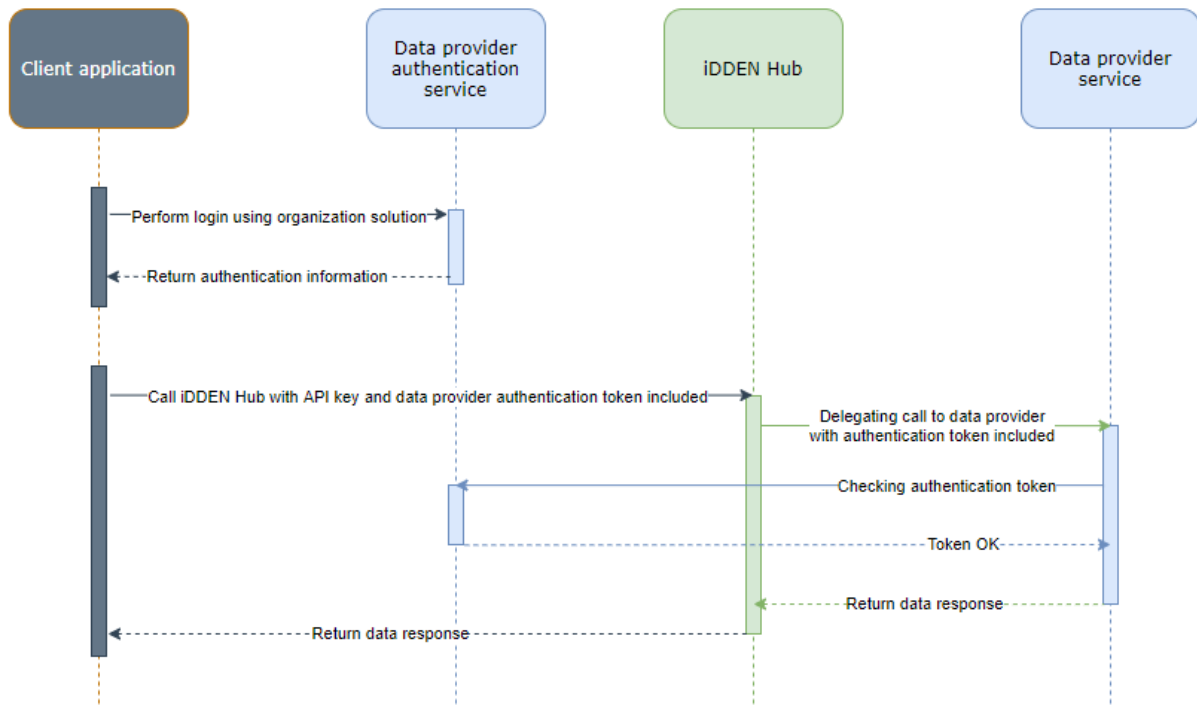
For more information refer to “iDDEN – Client authentication and data routing” documentation.

Authentication to data provider

The iDDEN service security solution follows these general principles:

- iDDEN does not perform any end user authentication/authorisation logic by itself but it assumes that the authentication will be implemented by the backend system of each organisation.
- iDDEN assumes that the organisation authentication produces a single string-type authentication token which is included within the HTTP header “Authorization” in the iDDEN requests. This token should only use ASCII-7 characters. iDDEN hub only passes it through and doesn’t parse or process it in any way.

This basic principle is illustrated in the picture below.



(Picture 1. iDDEN authentication principle)

For more information refer to the “iDDEN – Security handling” document.

Data exchange through the iDDEN Hub service

Target data provider organization

In order to start data exchange between the calling client application and the data provider through the iDDEN hub, an identification of the target organisation needs to be provided in the http request header as well.

The client application needs to define a target data provider organisation by using its official iDDEN identifier.

All the data provider organisations connected to the iDDEN Hub could be accessed via the iDDEN lookup service. The service provides all necessary information about the organisation identity: identification and authentication service URL address.

Header name	Purpose
iDDEN-ID-TARGET	iDDEN identifier of the target data provider organisation for data exchange routing

Available data exchange endpoints

The first release of the iDDEN Hub contains the ADE implementation of data exchange for the following event types:

- Animals (live cattle on the farm)
- Milking visits

The client application can thus request livestock data from the data providers and send milking visits registered in the client system to the data providers using the iDDEN hub endpoints.

The iDDEN Hub endpoints are implemented following the ICAR ADE specifications.

Animals

For fetching livestock data from the data providers, the client application needs to send a **GET** request for the iDDEN Hub using the following service endpoint:

`/v1/locations/{location-scheme}/{location-id}/animals`

Milking visits

For sending milking visits to the data providers the client application needs to send a **POST** request for the iDDEN Hub using the following service endpoint:

`/v1/locations/{location-scheme}/{location-id}/milking-visits`

iDDEN is following ICAR ADE standard for supporting

iDDEN available ADE Messages

Refer to the “iDDEN – Messages” documentation.

Related documentation

1. iDDEN – ID
2. iDDEN – Organization registration
3. iDDEN – Client authentication and data routing
4. iDDEN – System description
5. iDDEN – Use cases
6. iDDEN – Security handling
7. iDDEN – ICAR ADE information
8. iDDEN – Messages