Raw data

Service Description

Abstract
This is the Service Description (SD document) for the ”Raw data” service according to the Eclipse Arrowhead documentation structure.

Contents

1 Overview

This document describes the ”raw data” service, which provides the raw data from the network sensors to the Preprocecss system in order to format it so it can be used to train or to be executed by the AI model.

The rest of this document is organized as follows. In Section 2, we describe the abstract message operations provided by the service. In Section 3, we end the document by presenting the data types used by the mentioned operations.

1.1 How This Service Is Meant to Be Used

This service is used to format the data from the sensors so it can be executed by the model loaded in the AI-tool. Also, it is crucial to train the model with the correct format and reducing the noise.

1.2 Important Delimitations and Dependencies

Memory may be a limitation if graphs or another visualization tool is added. Also, if there are some packets missing or filtered, this may affect the training. A physical limitation can be the size of the buffer if the network is almost saturated. The reliability of the network to send the data with minimum noise is also important.

2 Service Interface

This section describes the interfaces to the ”raw data” service. In particular, each subsection names an abstract operation, an input type and an output type, in that order. The input type is named inside parentheses, while the output type is preceded by a colon. Input and output types are only denoted when accepted or returned, respectively, by the interface in question.

All abstract data types named in this section are defined in Section 3.

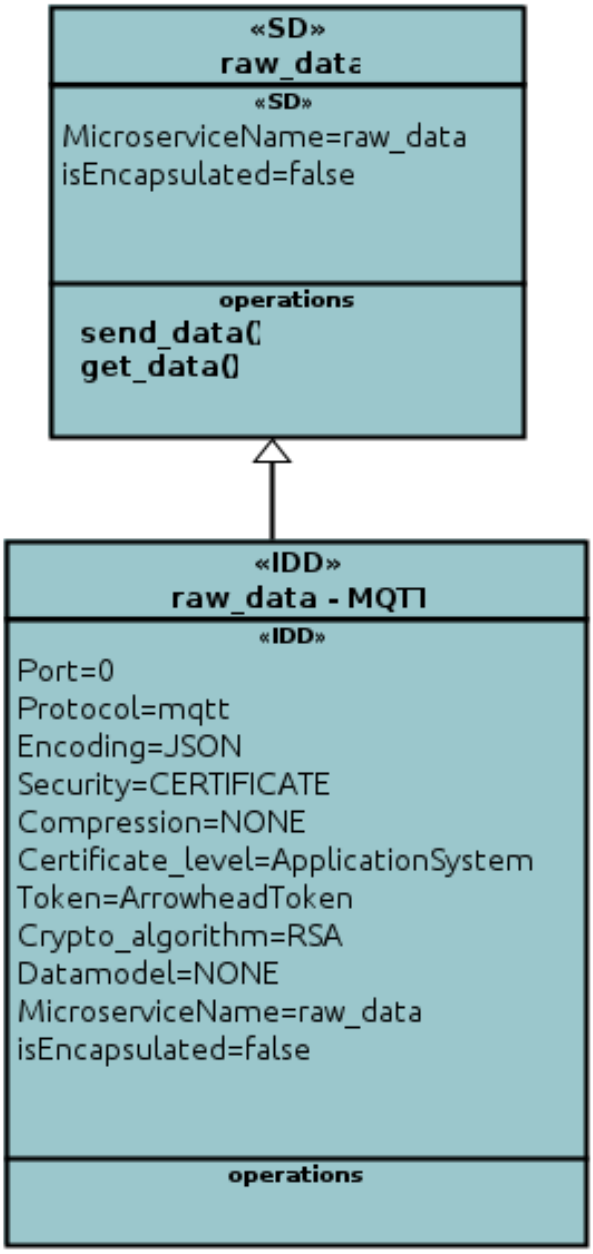

Figure 1: SysML block description diagram of the ”raw data” service

The following interface operations are available.

2.1 operation getData () : data

The getData operation is used to buffer the data that was formatted by the system, sent with the sendData operation.

2.2 operation sendData (data)

The sendData operation is used to transmit the raw data from the network sensors system to the Preprocess system.

3 Information Model

Here, all data objects that can be part something the ”raw data” Service provides to the hosting System are listed in alphabetic order.

3.1 struct modelTensor

This structure is used to store all the weights and bias of an AI model.

Field	Type	Description
data	String	Dataset.

3.2 Primitives

Types and structures mentioned throughout this document that are assumed to be available to implementations of this service. The concrete interpretations of each of these types and structures must be provided by any IDD document claiming to implement this service.

Type	Description
Address	A string representation of the address
Boolean	One out of `true` or `false`.
Interface	Any suitable type chosen by the implementor of the service.
DateTime	Pinpoints a specific moment in time.
List<A>	An *array* of a known number of items, each having type A.
Name	A string identifier that is intended to be both human and machine-readable.
PortNumber	Decimal number in the range of 0-65535
Version	Specifies a service version.

4 References

5 Revision History

5.1 Amendments

No.	Date	Version	Subject of Amendments	Author
1	2020-12-05	X.Y.Z		Tanyi Szvetlin
2	2021-07-14	X.Y.Z	Minor updates	Jerker Delsing
3	2022-01-10	X.Y.Z	Minor updates	Jerker Delsing

5.2 Quality Assurance

No.	Date	Version	Approved by
1	2022-01-10	X.Y.Z	