Document title		Document type
Database System		**SysD**
Date		Version
2025-10-20		**4.6.0**
Author		Status
Harry Grehag		**RELEASE**
Contact		Page
hargre-2@student.ltu.se		**1 (7)**

Database System
System Description

Abstract

This is the template for System Description (SysD document) according to the Eclipse Arrowehad documentation structure.

Document title
Database System
Date
2025-10-20

Version
4.6.0
Status
RELEASE
Page
2 (7)

Contents

Document title
Database System
Date
2025-10-20

Version
4.6.0
Status
RELEASE
Page
3 (7)

1 Overview

This document describes the Database system, which provides processed data for the Local Model system and the Model training system. This system uses the service of multiple different sensor to get raw data that will be processed. use case diagram.

	Document title	Version
	Database System	**4.6.0**
	Date	Status
	2025-10-20	**RELEASE**
		Page
		4 (7)

ARROWHEAD

1.1   How This System Is Meant to Be Used

The database uses the services of different sensor to obtain data, This data is then processed and made ready to be used as a micro service. This micro service can either be used by a local machine learning model or send multiple data points to another local cloud for further development of machine learning models.

1.2   System functionalities and properties

1.2.1   Functional properties of the system

- Accepts multiple point of raw data.

- Uses all the mandatory Arrowhead core services for security and an orchestrated operation.

- Stores previews data for future use

- Provides the service of processed data to other systems

- The system has toggleable operation that sets the type of service output the system produced.

1.2.2   Data stored by the system

The Data is stored in the form of MySQL.

1.2.3   Non functional properties

- security, Authentication, security tokens

- energy consumption, unknown

- latency, unknown

- Power saving properties, No gui during runtime

1.2.4   Stateful or stateless

- states preserved, functional and non-functional

1.3   Important Delimitations

The database system is responsible for handle the raw data for multiple sensors while also processing the data to the need of the other consumer systems. The database produces processed data in the form of one data point or a whole data set.

Document title
Database System
Date
2025-10-20

Version
4.6.0
Status
RELEASE
Page
5 (7)

2   Services

2.1   Produced service

The database produced processed data.**??**

2.2   Consumed services

- service Discovery: For letting other systems know that the database service is available and searching for services to produce.

- Orchestration: To get the authorisation made in an orchestrated way.

- Authorisation: To get Authrisation to consume or produce a service.

- TempratureData: To receive data for the database.

- VoltageData: To receive data for the database.

- VibrationData: To receive data for the database.

Document title
Database System
Date
2025-10-20

Version
4.6.0
Status
RELEASE
Page
6 (7)

3   Security

The security of Eclipse Arrowhead - and therefore the security of Database - is relying on X.509 certificate trust chains. The Arrowhead trust chain consists of three level:

- Master certificate: `arrowhead.eu`

- Cloud certificate: `my-cloud.my-company.arrowhead.eu`

- Client certificate: `my-client.my-cloud.my-company.arrowhead.eu`

  For Arrowhead certificate profile see `https://github.com/eclipse-arrowhead/documentation`

4   References

Document title
Database System
Date
2025-10-20

Version
4.6.0
Status
RELEASE
Page
7 (7)

ARROWHEAD

5 Revision History

5.1 Amendments

No.	Date	Version	Subject of Amendments	Author
1	2020-12-05	4.6.0		Tanyi Szvetlin
2	2021-07-14	4.6.0	Minor updates	Jerker Delsing
3	2022-01-12	4.6.0	Minor updates	Jerker Delsing

5.2 Quality Assurance

No.	Date	Version	Approved by
1	2022-01-10	4.6.0	