Document title **Eclispe Arrohead Naming Convention**		Document type **SoSD**
Date **2025-04-24**		Version **5.0.0**
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Eclispe Arrohead Naming Convention

Abstract
Proposla for naming convention of microsystems, microservices and associated attributes and metadata. This is intended as an appendix to the Eclipse Arrowhead GSoSD document.

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1   Overview

Proposla for naming convention of microsystems, microservices and associated attributes and metadata. This is intended as an appendix to the Eclipse Arrowhead GSoSD document.

The rest of this document is organized as follows. In Section 1.1, we reference major prior art on microsystem and microservice naming within the Eclispe Arrowhead project.

In Section 1.2, we detail the underlaying thinking and principles for the naming convention.

In Section 1.3, we provide a set of example.

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1.1   Significant Prior Art

A previous proposal by Paniagua et.al [1] has not gained attention. Thus we here proposa a significantly simpler naming convention approach for Eclipse Arrowhead mincrosystems, microservice and associated metadata and attributes.

1.2   Foundational naming principles

The ambition with this naming conventions is to provide names being:

- Names shall only be composed of ASCII characters.

- Names shall reflect the intended functionality and usage in an SOA architecture

- Microsystem and Microservice name shall not be identical

- Microsystems name shall start with a Capital letter

- Microservices name shall starrts with a lowercase letter

- Metadata and attribute naming should be descriptive enabling easy human understandning of context

- Microservice interfaces should be all lowercase with - as the separator between word to enable readability

- Naming of instances of microsystems microservices, metadata and attrtibutes shall follow the naming convention of the applied standard

- The choice of industry standards to be applied should preferable be possible to connected to the Industrial Data Ontology (IDO), ISO 23726-3

1.3   Naming example

Please find below a set of examples for the most important naming siutaitons in the Eclipse Arrowhead architecture

- Microsystems name always start with a Capital letter: examples

  - ServiceRegistry
  - DynamicServiceOrchestration
  - SimpleServiceOrchestration
  - FlexibleServiceOrchestration
  - ComputeOrchestrationSystem
  - DeploymentOrchestrationSystem
  - ConsumerAuhtorizationSystem
  - Authentication

- Microservices name always start with a lowercase letter: examples

  - serviceDiscovery
  - serviceOrchestration
  - computeOrchestration
  - simpleOrchestrationStoreManagement
  - flexibleOrchestrationStoreManagement
  - deploymentOrchestration
  - consumerAuhtorization

- Metadata and attribute naming which in combination to the related Microsystem or Micsroservice shall be meaningfull

    - Metadata/attribute: Timestamp (of what should be possible to infere from the naming of the microsystem or microservice instance to which the metadata/attribute is connected

    - Metadata/attribute: SWversion (version reference of the deployed software)

    - Metadata/attribute: SWcompiler (which comiler was used)

    - Metadata/attribute: CompilerSwitches (used compiler switches and value)

- Microservice interface naming which in combination to the related Microsystem or Micsroservice shall be meaningfull: examples

    - general-management

    - device-discovery

- Instance naming shall follow the naming convention of the applied standard e.g. ISO 15296, ISO 10303, S5000.

2   References

[1] C. Paniagua, J. Eliasson, C. Hegedus, and J. Delsing, "System of systems integration via a structured naming convention," in *2019 IEEE 17th International Conference on Industrial Informatics (INDIN)*, vol. 1, 2019, pp. 132–139.

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3 Revision History

No.	Date	Version	Subject of Amendments	Author
1	2025-04-02	5.0.0		Jerker Delsing
2	2025-04-09	5.0.0		Jerker Delsing
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3.1 Quality Assurance

No.	Date	Version	Approved by
1	2025-04-02	5.0.0	Pal Varga