

Systems Modeling Language (SysML)

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Discussion

The Systems Modeling Language (SysML) is a general-purpose modeling language for systems engineering. Systems engineers use SysML to represent multiple aspects of a system within an integrated model.

SysML supports the representation of concerns such as:

Requirements System structure System behavior Interfaces Constraints Quantitative relationships
Analysis cases Verification cases Relationships among system elements

SysML supports model-based systems engineering by enabling architects and engineers to express system concerns through formally defined modeling constructs rather than relying only on independent diagrams and narrative descriptions.

The term SysML may refer to the language family as a whole. SysML versions 1 and 2 represent distinct major generations of the language. SysML v1 was developed from a profile of UML. SysML v2 defines a substantially redesigned language with its own textual and graphical concrete syntaxes and a more precise semantic foundation.

Definition

General-purpose modeling language for specifying, analyzing, designing, and verifying systems.

Source

- Object Management Group, Systems Modeling Language version 1.7, <https://www.omg.org/spec/SysML/1.7/>
- ISO/IEC 19514, Information technology — Object Management Group Systems Modeling Language
- Object Management Group, Systems Modeling Language version 2.0, <https://www.omg.org/spec/SysML/2.0/>

Note

A SysML model is not an implementation of the system it represents. The model expresses selected structural, behavioral, requirements, constraints, and analytical characteristics of the system.

The applicable SysML major version forms part of the model context. A model expressed in SysML v1

does not automatically conform to SysML v2, and a model expressed in SysML v2 does not automatically conform to SysML v1.

Example

A systems architect may use SysML to model the components, responsibilities, interfaces, information flows, constraints, and traceability relationships of a regulated information-processing system.

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