



A Practical Guide to SysML, Second Edition: The Systems Modeling Language (The MK/OMG Press)

By Sanford Friedenthal, Alan Moore, Rick Steiner

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A Practical Guide to SysML: The Systems Modeling Language is a comprehensive guide for understanding and applying SysML to model systems. The Object Management Group's OMG SysML is a general-purpose graphical modeling language for representing systems that may include combinations of hardware, software, data, people, facilities, and natural objects. SysML supports the practice of model-based systems engineering (MBSE) used to develop system solutions in response to complex and often technologically challenging problems. The book is organized into four parts. Part I provides an overview of systems engineering, a summary of key MBSE concepts, a chapter on getting started with SysML, and a sample problem highlighting the basic features of SysML. Part II presents a detailed description of the SysML language, while Part III illustrates how SysML can support different model-based methods. Part IV discusses how to transition MBSE with SysML into an organization.

This book can serve as an introduction and reference for industry practitioners, and as a text for courses in systems modeling and model-based systems engineering. Because SysML reuses many Unified Modeling Language (UML) concepts, software engineers familiar with UML can use this information as a basis for understanding systems engineering concepts.

- Authoritative and comprehensive guide to understanding and implementing SysML
- A quick reference guide, including language descriptions and practical examples
- Application of model-based methodologies to solve complex system problems
- Guidance on transitioning to model-based systems engineering using SysML
- Preparation guide for OMG Certified Systems Modeling Professional (OCSMP)

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Editorial Review

Review

"SysML is the new industry-standard language designed specifically to support modern systems engineering. I cannot imagine a better way to learn SysML than to read about it from the masters: Friedenthal, Moore, and Steiner led the design of this important new language and now cap that effort with this comprehensive and highly readable guide for both novices and experts."

-Bran Selic, Malina Software Corporation

"This book is just the ticket you need to get started on the road to adopting standards-based, model-based systems engineering (MBSE) methods. The authors have done an outstanding job in providing detailed coverage of the SysML language and semantics supported through worked examples."

-Jeff Estefan, Principal Engineer, NASA's Jet Propulsion Laboratory

"The authors of this book have been involved in SysML development since its inception, and have the understanding necessary to explain it clearly. In particular, the activity diagrams chapter accurately and concisely describes the SysML extensions to UML for functional flow modeling."

-Conrad Bock, OMG Lead for Activity Modeling in SysML

From the Back Cover

A Practical Guide to SysML

The Systems Modeling Language

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Key Features

- Authoritative and comprehensive guide to understanding and implementing SysML
- A quick reference guide, including language descriptions and practical examples
- Application of model-based methodologies to solve complex system problems
- Guidance on transitioning to model-based systems engineering using SysML
- Preparation guide for OMG Certified Systems Modeling Professional (OCSMP)

Description

Until now, little consolidated information has been available regarding SysML. However, this book changes all that! It provides new users with a comprehensive guide to SysML, including a full description of the language and examples that demonstrate the power of the language. . Additionally, model-based systems engineering methodologies show how to use the language to solve complex systems problems. The book also provides the foundations needed to prepare for the OCSMP certification exams.

About the Authors

Sanford Friedenthal has been an advocate for model-based systems engineering and a leader of the industry team that developed SysML from its inception through its adoption by the OMG. He led the model-based systems development initiative at Lockheed Martin to deploy model-based methods with SysML on to programs.

Alan Moore is an Architecture Modeling Specialist at The Math Works. He has extensive experience in the development of real-time and object-oriented methodologies and their application. Alan was co-chair of the OMG's Real-time Analysis and Design Working Group and served as the language architect during the development of SysML.

Rick Steiner is an Engineering Fellow at Raytheon. He has been a key contributor to the definition and development of the SysML specification, particularly in the area of allocation and requirements.

About the Author

Sanford Friedenthal is an MBSE Consultant. He has been an advocate for model-based systems engineering and a leader of the industry team that developed SysML from its inception through its adoption by the OMG.

Alan Moore is an Architecture Modeling Specialist at The MathWorks. He has extensive experience in the development of real-time and object-oriented methodologies and their application. Alan was co-chair of the OMG's Real-time Analysis and Design Working Group and served as the language architect during the development of SysML.

Rick Steiner is an independent consultant focusing on pragmatic application of systems engineering modeling techniques. He culminated his 29 year career at Raytheon as an Engineering Fellow, Raytheon Certified Architect and INCOSE Expert Systems Engineering Professional (ESEP).

Mr. Steiner has been an advocate, consultant, and instructor of model driven systems development for over 20 years. He has served as chief engineer, architect, or lead system modeler for several large scale electronics programs, incorporating the practical application of the OOSEM methodology and generation of

Department of Defense Architecture Framework (DoDAF) artifacts from complex system models.

Mr. Steiner has been a key contributor to both the original requirements for SysML and the development of SysML specification. While his main technical contribution has been in the area of allocations, requirements, and the sample problem, Mr. Steiner has also served as co-chair of the SysML Revision Task Force (RTF). He continues to provide frequent tutorials and workshops on SysML and model driven engineering topics at INCOSE events, NDIA conferences, and other corporate engagements.

Users Review

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Dennis Byrd:

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Esther Belote:

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