PTC Modeler

A scalable, multi-user environment for designing systems and software with speed and efficiency

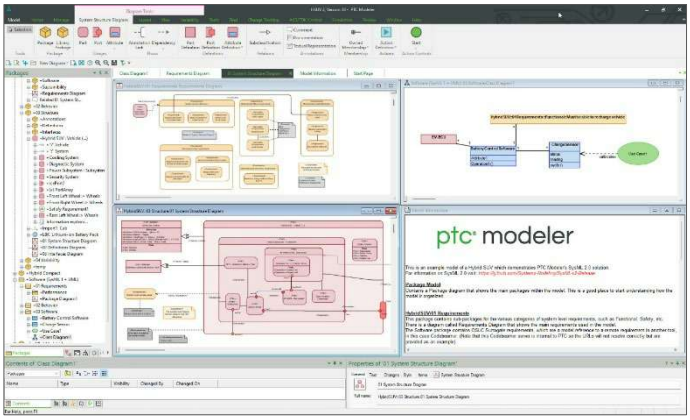
As development projects become more complex, it is increasingly difficult to create and communicate engineering design ideas so they can be easily understood, analyzed and agreed on by all stakeholders. PTC Modeler is a market-leading design environment for model-based system and software engineering, that utilizes a shared, multi-user database. It provides an integrated toolset for modeling complex systems using SysML (Systems Modeling Language) 1 and 2, software development with UML (Unified Modeling Language), managing variability with product line engineering (PLE) capabilities and establishing traceability with other design artefacts as part of the engineering digital thread.

Develop Complex Systems and Software With Ease

PTC Modeler reduces the time and effort required to design products, systems, and software by leading you through the appropriate industry-standard diagrams while automating repetitive tasks and identifying potential design problems.

PTC Modeler includes the following main features:

- Supports the creation of consistent, high-quality visual models for systems, software, and product lines to improve understanding, decision-making, stakeholder buy-in and product quality.
- Enables multi-user concurrent design, as well as model sharing and collaboration ranging from formatted document publishing to live web access.
- PTC Modeler Reviewer for checking models, finding errors, extracting management metrics, and improving designs early in a process.
- PTC Modeler SySim for simulating the behavior of SysML designs using a drag-and-drop interface.
- PTC Modeler Automated Code Synchronizer for automatically generating source code from your UML models.
- PTC Modeler Transformation Development Kit for taking advantage of Reverse Syntax Notation.
- Single source of traceable design truth with integration and trace links to other lifecycle tools such as Codebeamer and Windchill PLM.
- An extensible meta-model, powerful profiling, and user interface simplification.



PTC Modeler for scalable, multi-user systems and software modeling.

PTC Modeler

PTC Modeler enables systems and software engineers to create models, communicate requirements, identify key functions, consider design alternatives, and make decisions involving team members working in multiple locations. It auto-generates many other project artifacts and provides linking and traceability between all model elements. Linking and traceability helps to establish the engineering digital thread and ensure visibility and accountability during project development.

PTC Modeler also provides all the facilities you need to manage your models, including access controls, versioning, differencing, branching, merging, and full change tracking.

Tools for adapting models to your needs

PTC Modeler lets you adapt the meta-models and user interfaces for UML, SysML 1 and 2, and other profiles to match your specific domain and project needs. It also provides out-of-the-box profiles for UAF, UPDM, MARTE, and ARINC653. Once your models are ready for wider distribution, it can auto-generate Microsoft Word® documents and apply your organization's styles and templates. Alternatively, all interested parties can view the models, including diagrams, through a live web client.

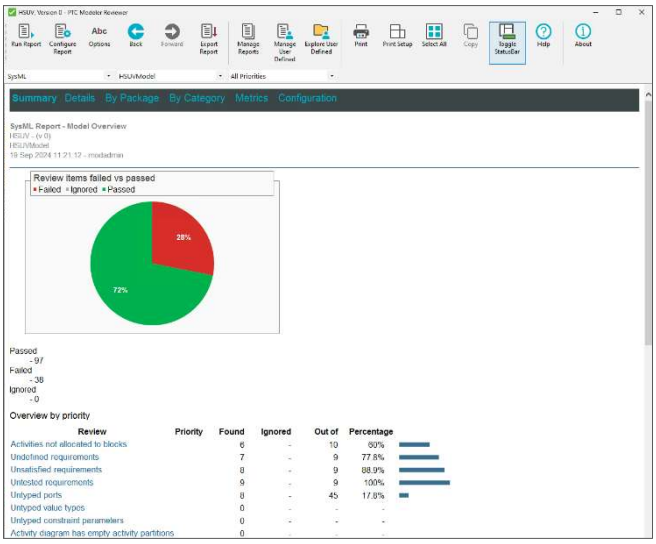
PTC Modeler Reviewer

Tools for finding design errors before they become costly problems

Reviewer lets you check models, find errors, extract management metrics, and improve designs early in a process. It is particularly useful when projects involve new or infrequent modelers or other individuals who need active mentoring.

Reviewer comes preloaded with 100+ out-of-the-box design reviews that can be extended and configured to reflect your own modeling best practices.

Large projects with architects, systems, and software engineers all using one modeling tool make it critically important to have management statistics available to track development progress. Reviewer provides this oversight while allowing you to find errors early and improves confidence in the robustness of your designs. It provides intuitive tools for measuring quality and identifying design faults much faster.



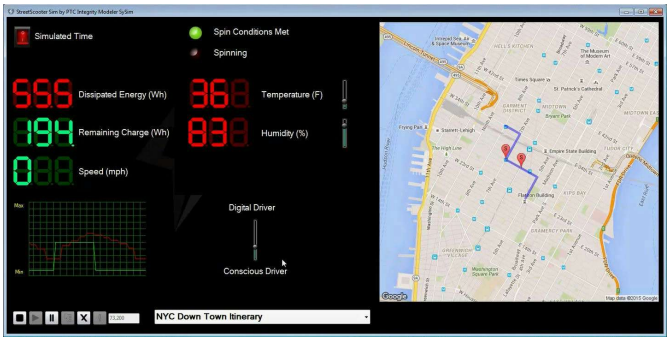
PTC Modeler Reviewer enables you to track design completeness and correctness, leading to improved product quality

PTC Modeler SySim

Tools for ensuring consistency and correctness

PTC Modeler SySim enables you to simulate the behavior of SysML designs using a drag-and-drop interface. It transforms your designs into executable, graphical applications that you can share with project participants, customers, stakeholders, managers, and system implementers to analyze and verify the designed system behavior.

You can generate simulation graphics and scenarios, review complex system behavior early in the specification phase, and gain a complete picture of the specification's consistency and completeness. PTC Modeler SySim's strong feature set helps you reduce design walkthrough times and eliminate system errors, contributing to significant time and cost savings and on-time delivery.



PTC Modeler SySim enables you to simulate design behavior.

PTC Modeler Automatic Code Synchronizer

Tools for improving coding efficiency

PTC Modeler Automatic Code Synchronizer (ACS) is a highly efficient tool for building successful software solutions and extensions for existing systems. The out-of-the-box ACS transformation patterns automatically generate C, C++, C#, Ada, Java, VB, ARINC653, SQL DDL, IDL, and XMI from your models. It runs as a background PTC Modeler process and automatically generates source code from your UML models, saving time, increasing productivity, and giving your developers a flying start.

ACS ensures your UML design and code remain synchronized and ready to support ongoing development, maintenance, enhancement, and integration tasks. It uses UML class and relationship information and dynamic information such as state diagrams to generate code logic. This code animates Modeler diagrams when applications are executed on the host or target, while code instrumentation allows your state model to interact with the application to debug your code at design time.

ACS reacts instantly to model modifications, simultaneously making the code visible in the project's integrated development environment or code editor.

ACS allows you to invest in design once and keeps the design current and ready to use for future projects with the same or different implementation technology. Coding standards and best practices are documented in pattern models and automatically applied by every software developer, reusing best practices and increasing quality. It allows typical users to generate 40 percent to 90 percent of their code automatically, which reduces most programming efforts by up to 45 percent and rework by half. Removing this reparative, low-end work frees the programmers to focus on the most important system features, algorithms, and performance issues.

PTC Transformation Development Kit

The PTC Modeler Transformation Development Kit provides a unique and powerful model-driven method for defining model-to-code (or file) transformation patterns. It allows you to define transformation rules as UML class models using object-oriented principles, familiar notation, and zero coding.

Transformation patterns implemented as UML models are easy to create, modify, version, and reuse. They are efficient and self-documented. This gives you full control over the syntax and semantics of the generated code, as well as the opportunity to implement project or company-specific coding standards. As the transformation pattern models are updated, the changes are instantly applied to ACS. This linkage eliminates the need to manually reconfigure the background synchronizer process. Modifications immediately change the way code is generated and provides feedback programmers can use to quickly develop new transformations.

PTC Asset Library

Tools for asset-based modular design

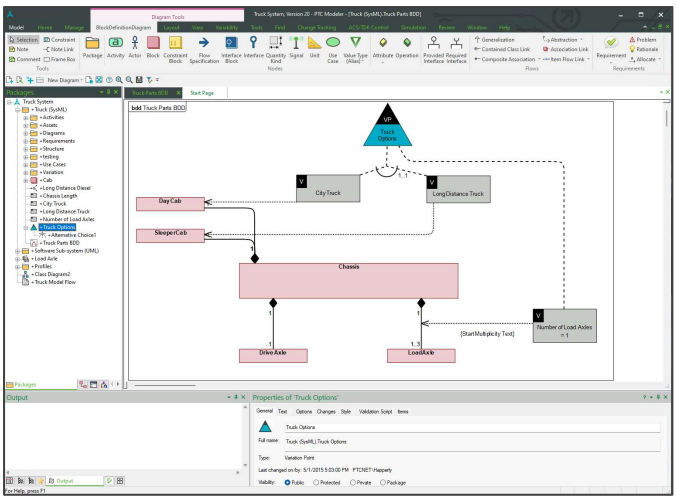
When combined with the PTC Asset Library, PTC Modeler enables you to quickly model system of system (SoS), component-based development (CBD), and service-oriented architecture (SOA) solutions. This linkage from the design process to the development or engineering approaches enables interface-based modularity, parallel working, and outsourcing.

Model-based product line engineering

Tools for system and software family design

PTC Modeler Product Line Engineering (PLE) extends the diagrams and model elements to include Variation Points, Variants, Decision Sets, and Variant Diagrams. The modeling language used for Variability Modeling in PTC Modeler is Orthogonal Variability Modeling (OVM), and its elements can be linked to all other model elements. This allows you to model system and software product lines (sometimes called Overloaded Models or 150% Models), then make decisions about the variations and available features and auto-generate product-specific models. These models can then be analyzed for suitability to resolve the trade-offs and identify the best products.

This unique approach for model-based product line engineering can extend model-based systems engineering and asset-based modular design to facilitate design of system and software families, not just one product. Utilizing PLE can dramatically improve customer satisfaction, market alignment, and productivity. PTC Modeler PLE customers have saved 50% of their design costs and achieved 80% reuse.



PTC Modeler Product Line Engineering helps you make decisions about variations and features.

Integrated products

PTC Modeler provides powerful, easy-to-use, OSLC-based integrations that enable you to capture design dependencies by linking related design artefacts to establish traceability. With a consistent, drag-and-drop user experience, PTC Modeler integrates with several engineering tools, including Codebeamer, PTC RV&S, Windchill®PLM, Siemens Polarion and IBM® Rational® DOORS Next®. PTC Modeler also integrates with MathWorks Simulink® and Ansys ModelCenter® for model simulation.

PTC Modeler is OMG UML XMI compliant, as proven by the PROSTEP Model Interchange Working Group.. Conforming to these standards future-proofs your models and allows integration with other XMI-compliant tools. It also lets you reuse core model assets, manage change through impact analysis, and automate updates in both directions.

Choose the package that is right for you

PTC Modeler provides an integrated toolset for creating consistent, high-quality SysML, SysML 2, UML, and variability models for systems and software engineering, SoS, CBD, and SOA solutions.
It typically reduces overall development costs by 62 percent and improves on-time delivery by 23 percent.

PTC Modeler is available by subscription. Each subscription offers transparent payment schedules so you can align your budget with immediate process benefits. Visit PTC.com/subscription for more information.