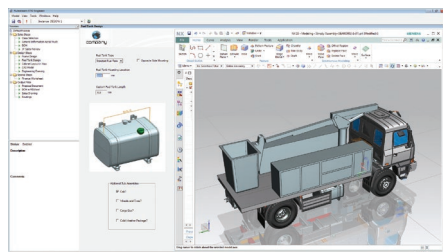SIEMENS
Ingenuity for life

Rulestream for engineer-to-order process automation

Enabling manufacturers to rapidly engineer products to unique customer specifications

Benefits
- Deliver custom products at the cost, quality and speed of more standardized products
- Automate ETO product and processes in a fraction of the time required by traditional approaches
- Focus on knowledge capture, not software development
- Improve lead times, win rates and profitability

Using Rulestream facilitates the automatic generation of engineering work products, such as BOMs, CAD models, etc., according to design and manufacturing rules.

Summary
If you've ever tried to automate your engineer-to-order (ETO) processes, you know it turns product developers into software developers. You also know it was a lot more difficult than you thought it would be, took a lot of time and money, was painful to maintain and even more of a challenge to enhance.

What if you could try this again, but this time with some help? We don't mean help with your product development which, after all, only you know; but help with the software part. Imagine a system in which your experts can focus more on capturing knowledge and less on writing software. This is what Rulestream™ software enables you to do. Rulestream provides the environment, you provide the knowledge.

Comprehensive solutions for ETO process automation
You know the operational challenges that ETO brings to your organization. All too often the result is long bid and order engineering lead times, inaccurate cost and schedule estimates, margin-eroding errors and project schedule/budget overruns.

Rulestream is a powerful solution specifically developed to help ETO companies like yours overcome those challenges. By using Rulestream to capture ETO process knowledge and rapidly engineer new products, even at the point of sale, companies have proven that they can increase sales win rates while shortening lead times and reducing overall costs. This ability to simultaneously grow revenue while lower operating expenses makes Rulestream a key asset for any company engaged in engineering products to order.
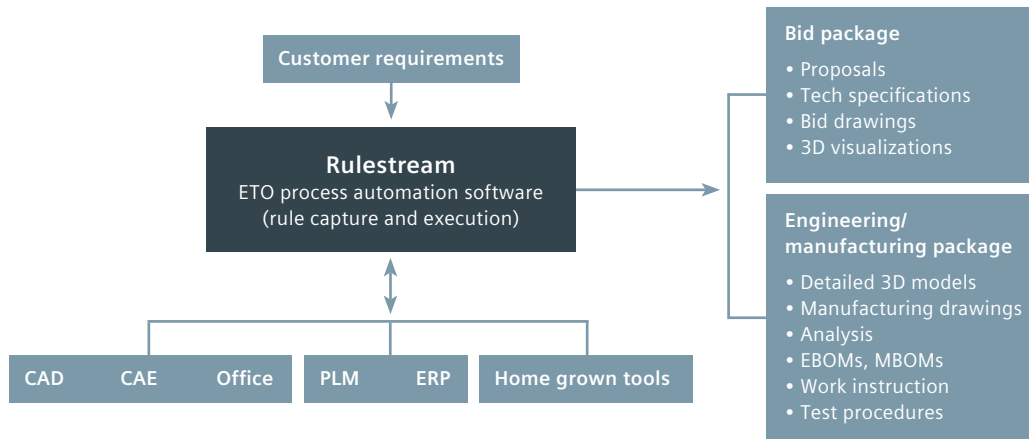
Rulestream explained
Rulestream allows your product/process experts to capture the rules on how to engineer, design, manufacture and quote on jobs quickly and efficiently.
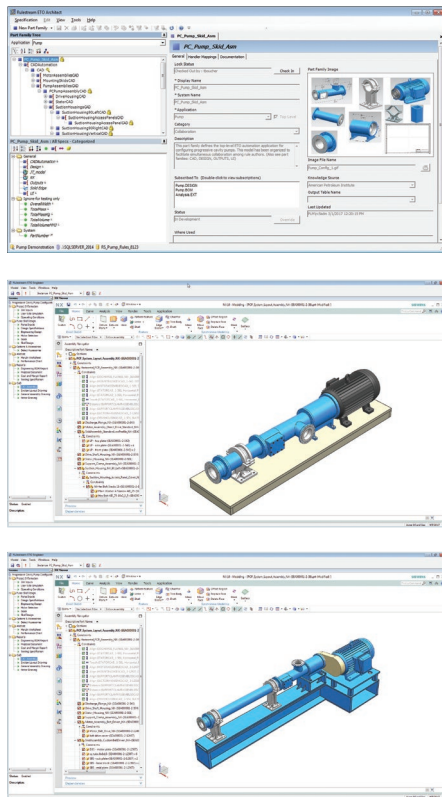
Designed specifically to address the challenges facing an ETO manufacturer, Rulestream provides the tools and integrations needed to get you up and automating in the shortest time possible.

Using rules your product experts capture and maintain, Rulestream generates new product designs from the customer's functional requirements. Through its easily configurable integrations with computer-aided design (CAD) and desktop systems, it can be used to accelerate bid-and-order engineering processes by automatically generating engineering outputs, including bills-of-material (BOMs), 3D models, drawings,

www.sw.siemens.com/plm/rulestream

Rulestream for engineer-to-order process automation

Customer requirements

Rulestream
ETO process automation software
(rule capture and execution)

CAD CAE Office PLM ERP Home grown tools

Bid package

• Proposals
• Tech specifications
• Bid drawings
• 3D visualizations

Engineering/ manufacturing package

• Detailed 3D models
• Manufacturing drawings
• Analysis
• EBOMs, MBOMs
• Work instruction
• Test procedures

By automating your ETO product and process rules, new requirements are addressed quickly and accurately within the constraints of your organizational capabilities, creating bid and manufacturing packages in minutes rather than weeks.

Product design rules are entered into Rulestream by your experts (first image) and used to drive the creation of new product versions. Here, using the same rules but varying the customer requirements results in different product designs.

visualizations, work instructions and technical documentation. Rulestream has interfaces with other enterprise solutions, which means you can take full advantage of the information stored in these systems as well as transmit the configuration results and outputs to any downstream system, enabling enterprise-wide process integration.
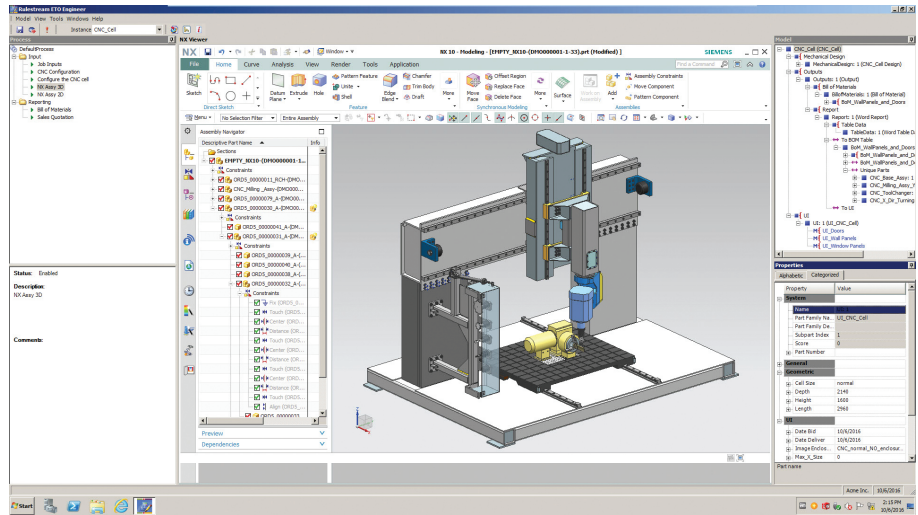
Key Rulestream capabilities

• Rich, easy-to-use authoring environment for expressing different types of product rules such as functional engineering, design, estimating, pricing and process planning

• Ability to capture complex engineering rules and heuristics: Using Rulestream allows companies to capture the complex engineering, design and manufacturing rules needed to automate the design of a new part. This is in contrast to most configurator technologies, which are limited to Boolean expression rules governing the selection of existing parts

• End-user interface design tool providing intuitive, drag-and-drop setup of the user experience

• Deep, bi-directional integration with CAD, including NX™ software, Solid Edge® software, SolidWorks® software and PTC CREO® software, enabling you to dynamically generate

new assemblies, components and drawings according to your design rules

• Integration with Teamcenter® software for product lifecycle management (PLM) enables the rule-based automation of product structure, bills-of-material (BOMs), data sets and part re-use

• CAD independent: Rulestream is deployable independently from CAD, which allows it to be used for processes that do not require CAD automation. In addition, the Rulestream client user interface resides outside of the CAD environment, allowing non-CAD users to use the tool even when automating CAD models. This increases the available resource pool for generating the CAD outputs that support proposal and order processes

• Tight integration with Microsoft Visio software, a 2D schematic tool that allows users to graphically express a logical or physical layout that automatically drives downstream deliverables such as 3D CAD and BOMs

• Integration with Microsoft Word for automating the generation of such things as technical documents and sales proposals

- Additional output capabilities to the JT™ data format and DWG format

- Single, enterprise-wide repository for engineering process automation rules

- Flexible deployment options, including rich client, web client, web services (service-oriented architecture), offline client and batch processing. This allows Rulestream to serve the many user profiles in the extended enterprise

- Enterprise-scale environment and architecture that can support your capabilities and scale in terms of users, geography, products and rules

The benefits of automation

- Automation makes it possible to have an accurate design at proposal time. That in turn allows accurate cost and schedule estimates that drive a competitive bid. When you add in integrated, automated CAD and document generation, you have a robust and compelling bid package

- Deploy automation to the field for guided capture of customer requirements so you can automate bid content

- Automation during order processing means shorter lead times, higher quality and more complete shop-floor deliverables that result in fewer errors (rework/scrap) and work stoppages

- This streamlines the inquiry-to-cash process, improves win rates and margins and increases customer satisfaction

Rulestream provides rules-based generation of key sales and order engineering deliverables according to engineering and manufacturing constraints. It can be integrated with both engineering authoring tools and enterprise business systems with out-of-the-box integrations for CAD and PLM. Rulestream also has an open, flexible interface for integrating with other business systems such as enterprise resource planning (ERP) and customer relationship management (CRM). Orchestrating the application of rules across these various tools allows a Rulestream solution to rapidly generate ETO process deliverables and deposit them in the appropriate system of record.

System of record	Benefits	Capabilities
Sales quotation	• Increased bid rate • Increased win rate • Margin security	• Pricing/costing • Proposals • 3D visualization • Sales drawings
Order engineering	• Shorter lead time • Increased productivity • Fewer errors	• 3D models • Manufacturing drawings • Engineering BOMs • Verification reports
Order manufacturing	• Fewer work stoppages • Greater asset utilization • More throughput	• Manufacturing BOMs • Routings • Work instructions • Test procedures

Examples of industries

Rulestream has been used to develop a variety of products in numerous industries, including:

- Power plant equipment

- Power distribution equipment

- Compressor packages

- Industrial motors

- Conveyors

- Oil and gas equipment

- Machine tools

- Energy and utilities

- Industrial machinery

- Industrial cranes

- Specialty vehicles

- Commercial HVAC and refrigeration

Reach your implementation goals

Siemens Digital Industries Software offers a comprehensive set of services in connection with Rulestream to help you reach your implementation goals on time and within budget. A strong emphasis is placed on helping your project team become proficient in the use of Rulestream so your organization can be in complete control of capturing and managing the rules that drive your ETO process. Available services include product training, project management, solution architecture, best practice coaching, rule model development and software system integration.

Rulestream provides tangible benefits, is a time-tested solution and is supported by a PLM leader, Siemens Digital Industries Software.