



SIMCENTER STAR-CCM+

Multiphysics simulation for a complete insight into product performance

Simcenter STAR-CCM+ allows engineers to test and simulate how a product will perform. This solution guide will give you all you need to explore the platform.

EMIXA





Solution
Partner

PLM

SIEMENS

Simcenter STAR-CCM+

Explore the entire design environment of your product.

Simcenter STAR-CCM+ accurately predicts how products will perform in real-life situations using cross-discipline multiphysics simulation that provide complete insight into your product. To increase innovation and improvement of a product, it is essential to understand how operational performance will change when parametric design changes are made.

EMIXA

Contents

1-2	Key features
3	Further Learning
4	Industry Examples
5	Choose your Star-CCM+ Option
6-7	Training options
8	Case studies
9	About OnePLM

Design Exploration

Design exploration software takes simulation to the next level by allowing users to determine appropriate values of variables that yield product designs resulting in exceptional performance.

[Find out more](#)

Reacting Flow

The Simcenter STAR-CCM+ free trial delivers a comprehensive suite of reacting flow and emission models, covering a wide range of applications. It enables tight coupling between reacting flow models and heat transfer, radiation, multiphase reactions, and surface chemistry. Our reacting flow models help understand and optimise flame shape and location, minimize solid component temperatures, reduce emissions and maximize performance efficiency.

[Find out more](#)

Rheology

With the addition of computational rheology in Simcenter at no extra cost, engineers can now simulate fluids dominated by diffusion and viscous or viscoelastic behaviour. Modelling these simulations is possible thanks to the added finite element solver. This method is useful to engineers in consumer product, waste processing, and food and beverage industries who work with mixers, flow containers, slurries, extrusions, and material processing.

[Find out more](#)

[Learn more](#)

Key Features

Simcenter STAR-CCM+ applies to a wide range of industries. It gives high fidelity simulations that provide detailed answers to help increase innovation, exceed customer expectations while getting a high-quality product to market fast. The software incorporates all activities of the design and production workflow from CAD to clean up and meshing, all the way through to simulation and post processing.



[Learn more](#)

Electrochemistry Simulation

Our comprehensive electrochemistry simulation suite includes the building blocks of electrochemistry, various degrees of fidelity, tailor-made electrochemistry models, multiphase electrochemistry and design exploration capabilities.

[Find out more](#)

Fluid Dynamics Simulation

The Simcenter STAR-CCM+ free trial provides industry leading computational fluid dynamics software that allows you to simulate almost any engineering problem that involves the fluids, structures and all of the associated physics.

[Find out more](#)

Moving Objects

Within a single environment, Simcenter STAR-CCM+ empowers users to simulate not only a broad range of physics but also a broad range of body and mesh motions to accurately capture your physics.

[Find out more](#)

Multiphase Flow

Real-world engineering problems cover multiple flow regimes across stratified, dispersed, discrete, films, etc. Simcenter provides a comprehensive range of models which can be used together to cover many flow regimes including the transitions between them. Predict and understand real-world behaviour of your products by simulating multi-regime, multi-scale multiphase flows.

[Find out more](#)

Particle Flows

Particulate flows in engineering exist everywhere – fluidized beds, cyclone separators, coating, conveyors, roasters, and more. Whether lean or dense particle flows, Simcenter is the first CAE tool to have full particle-flow integration to maximize particle efficiency and distribution, minimize energy consumption, avoid excessive wear and abrasion and optimise the overall performance.

[Find out more](#)

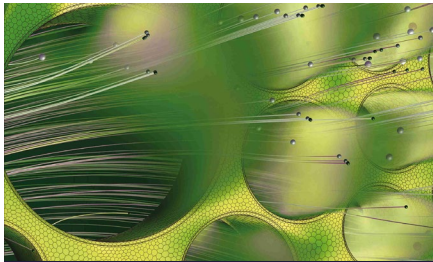
Further Learning

Take a look at some of our resources to learn more about Simcenter STAR-CCM+ and how the software can bring a range of benefits to your company.

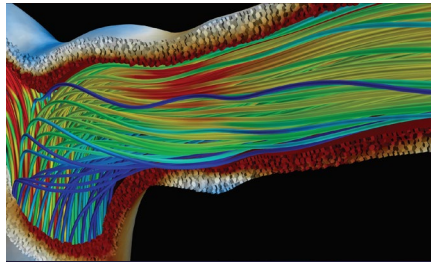
Join one of our events to learn more

[View our Events](#)

Downloadable resources



What's new in Simcenter STAR-CCM+ 2302?



Simcenter Star-CCM+ Data Analysis Fact Sheet

Get started

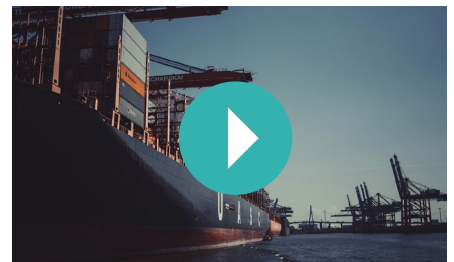


Download Free Simcenter Star-CCM+ 30 Day Trial

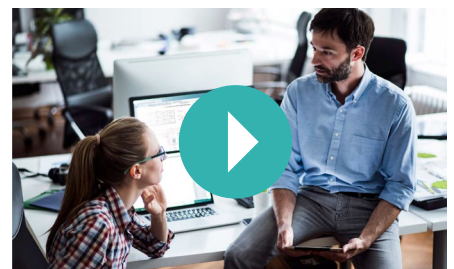
Video Learning



Simcenter Star-CCM+ What's New?



Fluid Dynamics for Marine Webinar



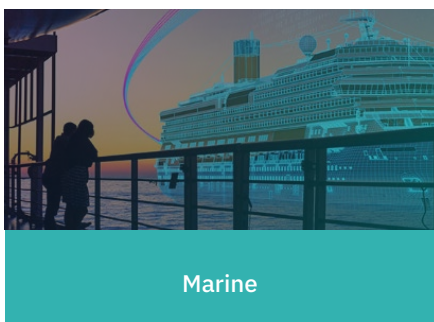
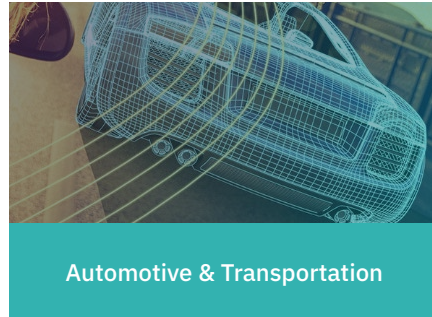
Why Simcenter STAR-CCM+

Visit our On Demand web page to view all webinars, articles, videos and case studies

[Explore On Demand](#)

Our Industries

Click on each industry to find out more information about how Simcenter STAR-CCM+ can over-come today's business challenges and transform your design process.



Importance of Digitalization

Digitalization promises lower costs, improved production quality, flexibility and efficiency. Take a look at our video to find out more.



Who we work with

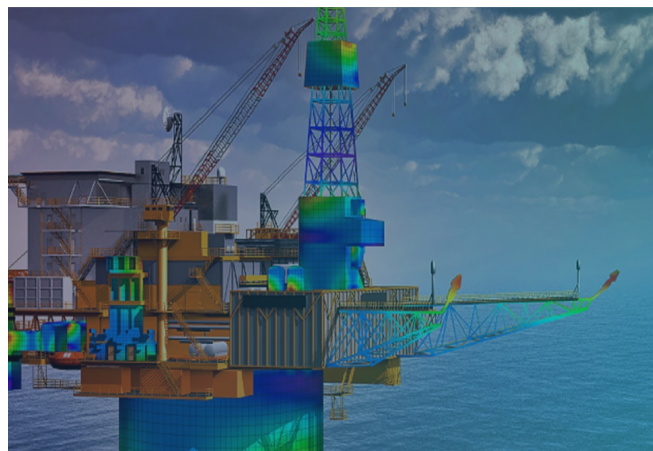


Choose Your Simcenter STAR-CCM+ Option

We have a range of licensing options available to suit your business needs. You will have access to a team of experts who will ensure you have all the information you need to get you up and running, fast.

Perpetual Licensing

Our perpetual license for Simcenter provides you with the full software suite that you own permanently after one initial purchase. You have access to the entire suite of tools to ensure you have everything you need to achieve your business goals. The software will be available for you to use indefinitely, offering powerful and extensive design capabilities whenever you need them.



Explore Simcenter CCM+ Value Based Licensing

Subscription Licensing

Subscriptions offer flexibility, cost-effective licenses, and a way to easily increase or decrease the number of software licenses depending on your business needs. Subscription licensing is ideal for organisations that require software tools for short to medium term usage. For those requiring complete flexibility with their software licensing, this is the perfect solution.

[Request Online Demo for Simcenter STAR-CCM+](#)

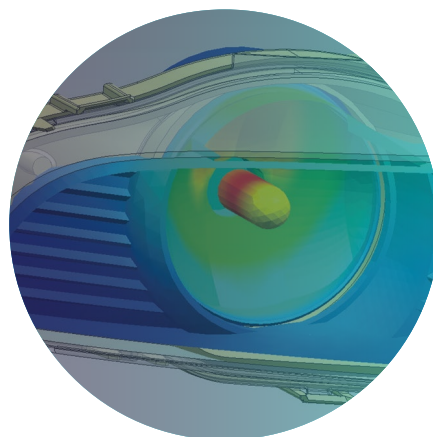
[How to Switch to Simcenter STAR-CCM+](#)

[Request Product Quote for Simcenter STAR-CCM+](#)



Value-Based Licensing

Value-based licensing is a new way for your business to adopt and use Simcenter tools in the most cost effective way, all whilst putting the license control and setup into your organisation's hands. Your licensing shouldn't restrict the way you work, that's why with value-based licensing you are able to constantly change your licensing options to fit your budget and business needs, alongside the ability to check in and out of a central pool that you manage. This licensing method is flexible and scalable. As your business grows and you require access to more tools, you are able to purchase more tokens to access these extra capabilities.



Training Options

We want to help you get up and running fast, that's why we offer a range of training options so you can achieve your business goals and transform how you work. Here at OnePLM, our experienced team have decades of experience within the design and manufacturing industry and our training is delivered by our industry-experts, who are here to support you throughout the session and beyond.

Remote Training

We offer remote training online in a secure environment that you can attend solo, or with your team. You will still receive the same expert-level of training from our experts to ensure you have everything you need to get the most out of your software solutions.



Classroom Training

We know that for some, nothing beats training in person and having someone in front of you sharing their knowledge and expertise. Join us at our head office in Oxford where our experts can deliver industry-leading training and be on hand to ensure you have all the knowledge and skills you need to get the most out of your software. This training is available at our head office or at your site.



Bespoke Training

Every business we work with is completely different and some businesses need more specific training than others. We can deliver bespoke training packages specific to your business needs to ensure you get the most out of your software. Our experts have the industry knowledge necessary to provide high-quality and accurate training that will give you everything you need to tackle even the most complex tasks.



Sunseeker

"OnePLM are always professional and exceptionally helpful. In particular we are very happy with the software training they provide, as we are able to learn using our own designs."



The Alloy

"OnePLM are flexible and creative, working with us to ensure that we really benefit from their specialist knowledge of NX."



Monier

"With onsite consultancy and staff training from OnePLM, we were able to optimise our CAM processes to significantly reduce programming times utilising the new application functionality."



Training options

Simcenter courses:

- [Simcenter 3D Essentials](#)
- [Simcenter 3D Advanced](#)
- [Simcenter Advanced Flow](#)
- [Simcenter 3D Composites](#)
- [Simcenter 3D Motion](#)
- [Simcenter Advanced Thermal](#)
- [Simcenter 3D Multi-Step Non-Linear](#)
- [Simcenter 3D Response Dynamics](#)
- [Simcenter Non-Linear \(Sol106\)](#)
- [Simcenter 3D Thermal & Flow](#)
- [Simcenter Nastran Dynamics](#)
- [Simcenter BESPOKE](#)

Explore Simcenter Training

Other services

[Engineering Resource](#)

We work with many educational providers to give top-tier graduates the skills and attributes demanded by the engineering sector.

[Support](#)

Email, call or log on to our users portal to resolve issues and find out more information about our software.

[Reverse Engineering](#)

Optimise your workflows between 3D scan data and our product portfolio.

[Automation](#)

Take a look at how Automation is impacting various industries now and in the future.

Other CAE courses:

- [NX Motion](#)
- [NX FloEFD Essentials](#)
- [NX FloEFD Advanced](#)
- [Solid Edge Simulation Essentials](#)
- [Solid Edge Simulation Advanced](#)
- [Solid Edge Simulation Motion](#)
- [Solid Edge FloEFD Essentials](#)
- [Solid Edge FloEFD Advanced](#)

CAE efficiency quiz

Is your CAE system effective for your business?

Try our 3 minute, multi-choice quiz. This will enable you to accurately find out if your business' use of CAE is ahead or behind the times, the impact it has on your business and what you can do to improve.

Take the quiz



Consultancy

- PLM Value Discovery Analysis
- PLM Process Mapping
- System Integration
- Data Migration
- Skills Validation
- PLM Administrator resources

Learn more

Case Studies

Renault F1 Team

The dynamic between grip and drag dictates design preparation for each race in the Formula One calendar. The use of computational fluid dynamics (CFD) software is critical and, for over 15 years, the company has been using Simcenter™ STAR-CCM+™ software.

By utilising the vast simulation suite, Renault F1 Team have:

- Enhanced understanding of how tire shape and deflection affect flow
- Gained consistency and repeatability with CFD templates
- Improved performance by simulating complex fluid flows

[Learn more](#)



Bye Aerospace

Bye Aerospace use several solutions from Siemens Digital Industries Software to help them get off the ground. The firm use Simcenter™ STAR-CCM+™ software for computational fluid dynamics (CFD) capabilities.

Through utilising the software Bye Aerospace have:

- Developed all-composite airplane with low part count yet a robust system
- Reduced product development time while doing more iterations
- Decreased potential size of engineering staff by 66%

[Learn more](#)

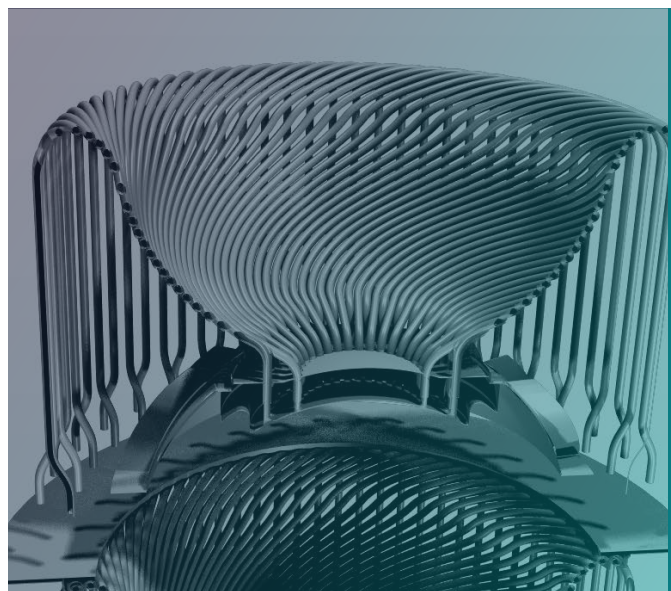
ThermoLift

For ThermoLift, finding a simulation solution to model the complex physics combined with moving domains was the challenge, and Simcenter Engineering Services, using Simcenter STAR-CCM+™ software, provided the answer.

As a result of using the software, ThermoLift have:

- Reduced building heating and cooling energy consumption and costs by 30 to 50 percent
- Integrated automated design optimization, allowing simulation to drive the design process
- Integrated more components into the simulation

[Learn more](#)



About Emixa

We at Emixa are a Digital Transformation specialist that help make businesses more agile and efficient through the use of world leading core technologies; PLM, ERP and Low code. To drive maximum efficiency and seamless collaboration, we also provide services in management consulting, integration and data analytics which create business value and increase competitive advantages leading to optimal performance and results. With a focus on the manufacturing industry, coupled with our decades of experience and global footprint, we at Emixa can help your business innovate, accelerate and attain new heights.

Watch Video

Access other Product Guides & Information



NX Design
Fibersim



NX CAM



Simcenter 3D
Simcenter FEMAP
Simcenter FloEFD
Simcenter Amesim
Simcenter STAR CCM



Solid Edge



Teamcenter



Polarion



Itemise



Tecnomatix



Keyshot



Mendix

Explore our full range of product guides
and discover what’s right for you

Explore All Product Guides