



Fidelity Marine CFD Simulation

CFD Software excellence for marine engineering

Cadence CFD simulation solutions offer dedicated, virtual naval architecture and marine design tools for unparalleled free surface modeling and scalable, highly automated optimization processes.

Solve and optimize propulsion, resistance, seakeeping, wind studies, and maneuvering in your designs through our dedicated workflows and team in place. Equip yourself with the utmost fidelity accuracy and efficiency with Cadence CFD solutions.

Historic software uses methods for solving that simply do not have the scalability to meet the needs of marine evolution. Cadence CFD analysis gives you an automatic and efficient computation setup. Additionally, our adaptive grid refinement allows for the constant improvement of simulation accuracy in an already highly capable solver environment.

Key Benefits

Unique, Major Automation Built-In

Whether you are designing a sailing yacht or a commercial ship, automation in your CFD simulations is necessary to complete the number of simulation runs needed to optimize your design and to improve turnaround speeds. Our solutions for marine environments have automation in place for resistance at low and high Froude numbers, seakeeping,(self-) propulsion, trim optimization, open water propellers and many other facets of ship CFD analysis. Our team of naval engineers have worked closely with our customer's to create dedicated automation workflows. Whether you are deep in an America's Cup, Vendee Globe campaign, or working to reduce drag and improve the propulsion efficiency of ships, you can trust our automated capabilities to provide your results with fidelity and speed.



Fig 1: Propeller's propulsion analysis



Fig 2: Zigzag Maneuvering

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Free Surface Resolution

Our marine solutions for CFD have been developed with total focus on flows involving free surface. This requires efficient free surface modeling considering both water and air, appropriate turbulence modeling, and efficient grid adaptation. Free surface simulations are resolved through volume of fluid simulations (VOF) and when paired with our unique capacity you can address seakeeping priorities faster and with more fidelity. For instance, your hydrofoil design should have no cavitation and ventilation issues. You cannot afford to lose pace in today's rapidly moving analytical environments. Pursue greater speeds than ever before in your CFD workflows with Cadence CFD solutions.

Unparalleled Accuracy and Speed

The constantly changing environments and flow conditions of oceanic environments, races, and climates often require hundreds and thousands of simulations to finalize a design and feel confident about the accuracy of its results. As marine experts or naval architects, the power of automation makes this work easy for you. We understand the types of turnaround and accuracy requirements expected of marine simulations and our tools focus on optimizing these processes for both speed and fidelity.

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Seakeeping

Maneuvering





Wind study



