

Autodesk®
Alias®

Design drives success.



Rendering of Cosmic Motors Galaxion 4000 Coupe concept car. Autodesk® Alias® Automotive and Autodesk® Alias® Surface software products were used in the design process. Image courtesy of Cosmic Motors, LLC.

Autodesk®

Exceptional Designers Demand Exceptional Tools

Creative designers demand the best of themselves, their craft, and their tools. Autodesk® Alias® software powers your creative design and technical surfacing processes with innovative sketching, modeling, and visualization tools as well as advanced surfacing capabilities that help you bring your vision to reality in less time.

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Unleash Creativity

Combine creativity and craftsmanship to capture inspirational ideas and forms using the powerful tools in Autodesk Alias software. By addressing the unique creative requirements of the [industrial design](#) workflow, Alias software enables you to rapidly iterate concepts and develop inspiring, ergonomic shapes that also meet functional requirements.

Perfect Your Designs

Form, function, and style all influence a consumer's choice of products. Alias software helps you develop 3D form to achieve a balance between aesthetics and engineering. With highly advanced curve-based and direct modeling capabilities in a single software environment, Alias software offers the tools you need to create 3D models, refine design details, and create high-quality production surfaces with speed, accuracy, and control.

Communicate Your Vision

Tell the story of your products to help customers and team members understand your design intent. Providing real-time 3D visualization tools and reliable data exchange with engineering CAD software, Alias software helps streamline communication among design and engineering teams. Effectively communicate concept designs and validate Class-A surface data, so engineering teams don't need to re-create your design data. The visualization and data exchange tools in Alias software help you maintain design integrity throughout the product development process, so design review decisions can be made quickly and projects can progress more smoothly.

Streamline Design with Specialized Design Tools

Alias software offers a full set of industrial design capabilities to meet your requirements for:

- Visual communication
- Conceptual design
- Design modeling
- Precision surfacing
- Reverse-engineering
- Real-time visualization
- Collaboration and interoperability



Image courtesy of Astro Studios

Effortless Conceptual Design

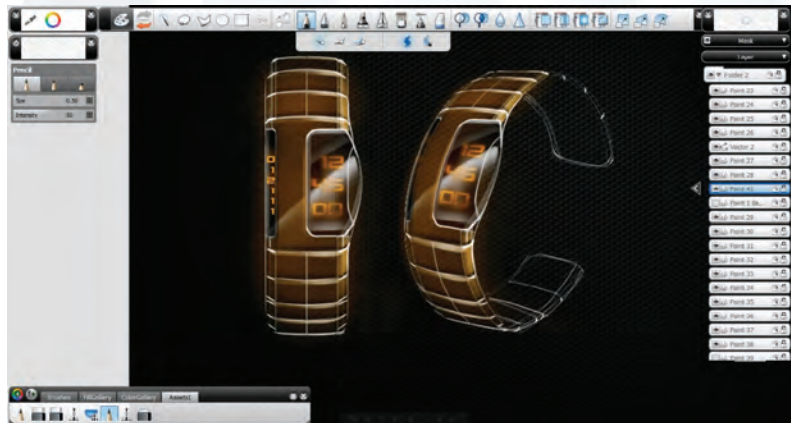
Autodesk Alias software helps you explore innovative design concepts in a digital sketching environment and a cohesive 2D/3D workflow, giving you the flexibility to create compelling designs that resonate with your customers.

Complete Sketching and Illustration Tools

Sketch, capture ideas, and communicate your design process in a natural digital sketching environment. Professional-grade drawing capabilities in Autodesk Alias software provide the tools you need for visual communication: concept sketches, design illustrations, and image editing. It also provides familiar illustration tools such as pencils, markers, airbrushes, erasers, custom brushes, color editing, and powerful image layer and compositing tools.

Intuitive Paint Interface

Easily make the transition from other 2D applications to Alias software, and enjoy a simpler, more natural drawing experience through a stylus and tablet input. Alias software can help accelerate your work by giving you quick access to common brush controls through a dynamic hot spot interface that appears directly under the cursor. Hot spots combine common key functions, so you access the keyboard less often—and maintain your focus on the task at hand.



Integrated 2D/3D Environment

Sketch over referenced engineering CAD data to help ensure design feasibility at full scale. Alias software was the first to introduce an integrated 2D sketching and 3D modeling environment, enabling designers to quickly take several concepts from sketch to 3D and explore details in sketches without having to invest hours resolving the 3D model form to accord design

approvals. Take advantage of the flexibility of Alias software's 2D-to-3D workflows; sketch what's hard to model and model what's easy to sketch.

Design Variations and Modification

Create design variations easily. Alias software provides deform and warp tools to alter the proportion or character of an image and modification tools to make subtle corrections or radical changes quickly and easily. Likewise, a full suite of color adjustment tools enables you to tweak colors, highlights, and shadows and explore color alternatives.

Autodesk SketchBook Designer

Autodesk® SketchBook® Designer software* provides a unique hybrid paint and vector platform that enables you to quickly capture design concepts by sketching and painting, and then easily edit

your illustrations with the precision and control of vectors. Easily export curve data from SketchBook Designer into Alias software, where you can quickly transform concept sketches into 3D [product designs](#).

Autodesk Maya

Industry-leading Autodesk® Maya® software is now included with Alias Automotive, bringing additional value to conceptual designers. A rich feature set of polygonal and subdivision modeling tools, along with data-sharing capabilities, help speed early conceptual design and provide workflow interoperability between conceptual mesh modeling in Maya and Class-A surfacing in Alias.

*Autodesk SketchBook Designer software is included with the purchase of a license for Autodesk® Product Design Suite Ultimate, Autodesk® Alias® Design software, and Autodesk® Alias® Automotive software.

Design Modeling

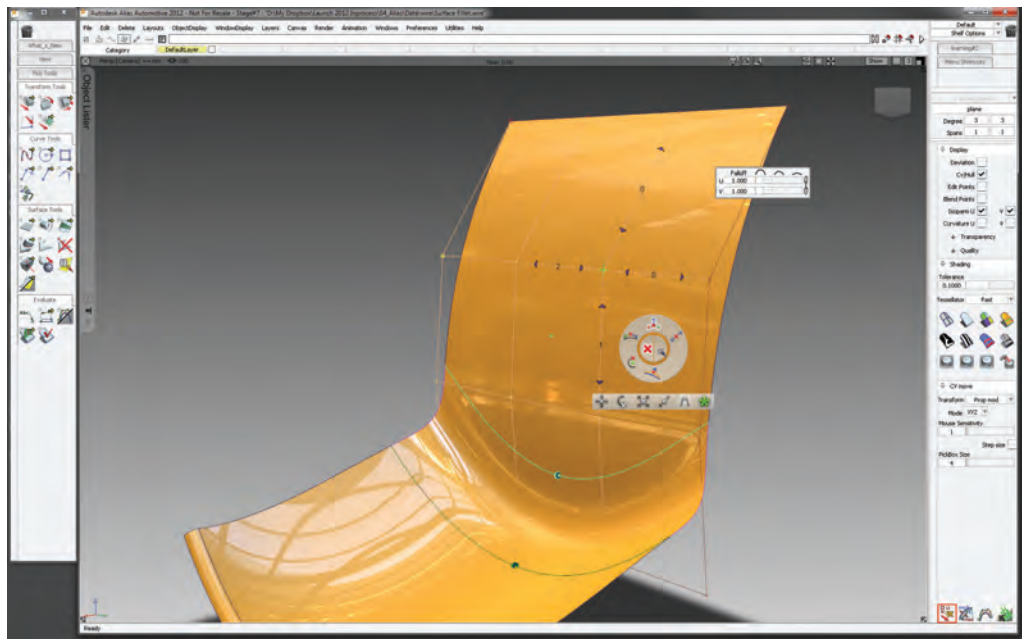
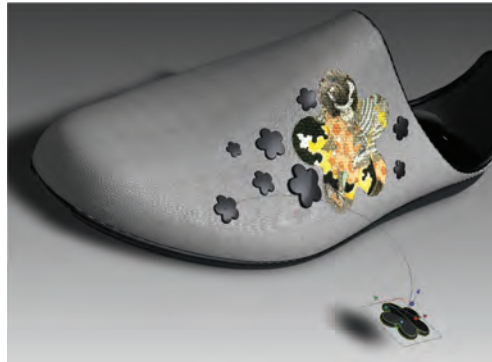
Develop your idea into 3D form through a creative, iterative modeling process to quickly evolve designs from concept to reality.

Flexible Modeling

Take advantage of a range of surface modeling techniques to construct and visualize nearly any form. Autodesk Alias software combines fast, repeatable curve-based modeling tools along with the flexibility designers need to directly sculpt and edit 3D models.

3D NURBS Sculpting

Manipulate, edit, and form surfaces by pushing and pulling surface control vertices. Build curve-based surfaces to initiate your form at its boundaries and use direct modeling to tweak the shape at any point. With Alias you are free to explore your most innovative ideas and maintain surface control, helping you to achieve the exact form and surface quality you demand of your designs.



Automated Modeling Tools

Autodesk Alias productivity tools significantly reduce the number of picks and clicks required in your everyday modeling workflows. Alias software includes tools for fast draft surface creation, easy surface selection and trimming, powerful curve and surface alignment, and tools that automate multiple common tasks, such as creating fillets and flanges in a single operation or automatically generating panel gaps.

Dynamic Shape Modeling

Experiment with shapes at any stage of the design process. Quickly manipulate your model, exploring variations on 3D forms without rebuilding geometry, or make real-time modifications in design reviews. Shape objects dynamically with these powerful tools:

- Lattice rig—Edit geometry by manipulating a customizable lattice box around an object.
- Bend—Bend geometry using a curve to control deformation.
- Twist—Twist geometry around a single-axis curve.
- Conform—Conform geometry to the shape of another surface.

Precision Surface Modeling

Autodesk Alias software provides the tools you need to build high-quality Class-A surfaces, refine innovative design details, and create production-ready technical surfaces. All with speed, control, and accuracy.

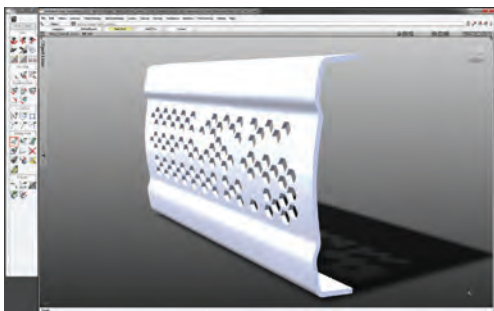
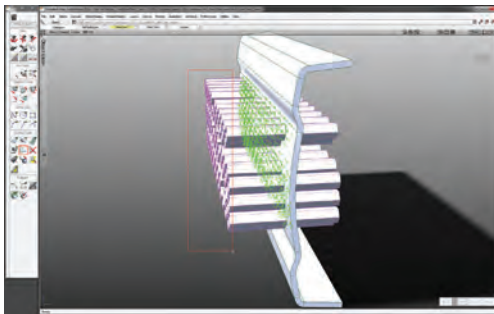
Advanced Surface Creation Tools

The advanced surface modeling tools in Alias help to ensure that surfaces maintain positional, tangent, curvature, and G3 continuity with adjacent surfaces. The result is a high-quality aesthetic model that maintains design intent and integrity from concept to production.



Advanced Trim Function

Precisely trim and approximate surface data to theoretical edges or intersections with complete control over the final surface structure. Explicit control over trimmed geometry helps to ensure that secondary surfaces are less complex and maintain a high level of visual quality.



Explicit Surface Control

Alias enables automated or explicit control over surface geometry, creating lighter, higher-quality 3D data. Choose to create Bezier or NURBS geometry and define the number of spans and degree of both curves and surfaces.

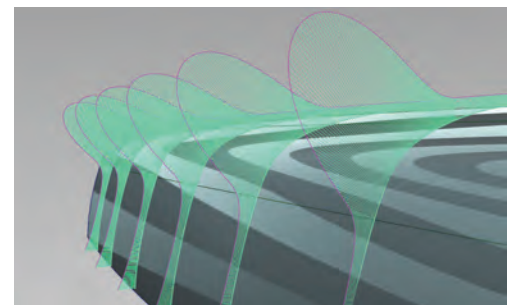


Align Tool

Quickly apply continuity conditions to curves and surfaces. The Align tool provides a focused and intuitive interaction supported by precise mathematical capability that delivers optimal surface continuity. The associative align function supports a faster and more productive workflow when capturing subtle changes to base geometry.

Model Evaluation

Evaluate and verify the quality of your created surfaces, including patch layout, curvature, draft angle, and surface highlight analysis. This capability helps ensure that your surfaces are meeting your aesthetic demands and technical surfacing requirements for manufacturing. Alias helps you fine-tune your models with analysis tools that provide instant numerical and visual feedback to quickly verify surface quality and feasibility.



Reverse-Engineering

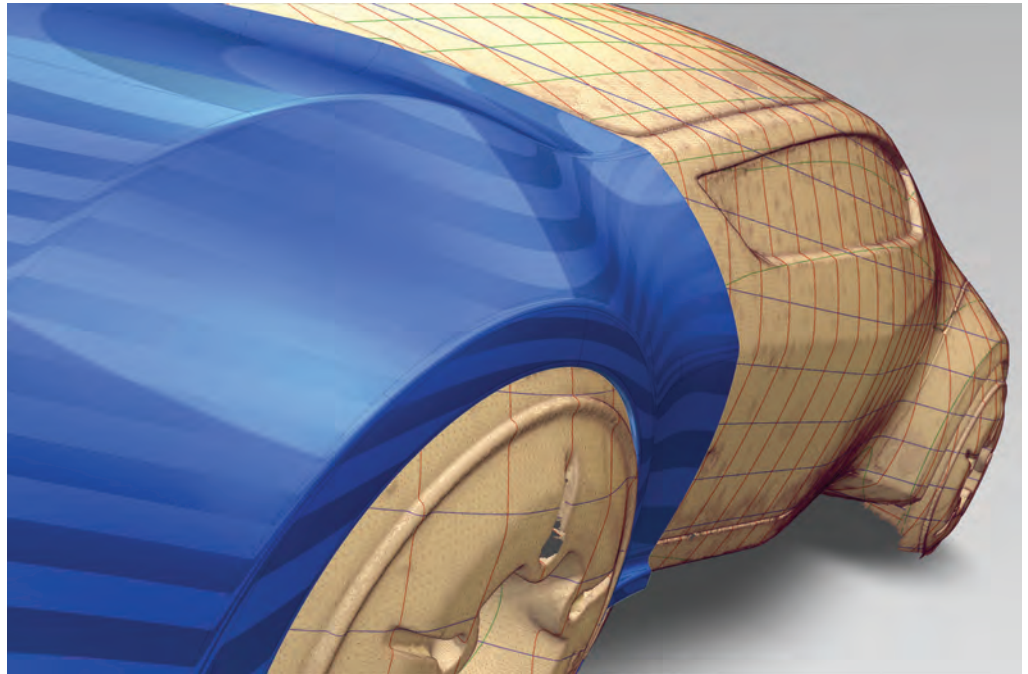
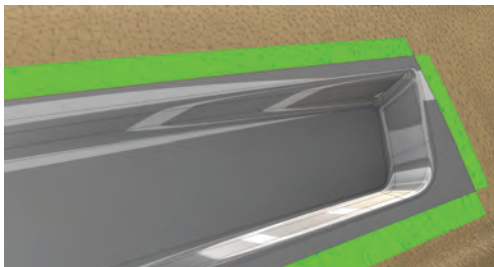
Move easily between the analog and digital worlds. Autodesk Alias software enables you to incorporate changes to a physical model into your digital model.

Scan Data Workflows

Import and configure scan data from 3D scanners to visualize and reverse-engineer automotive vehicles or consumer products. Alias helps you clean up and simplify data with tools for cutting, smoothing, automatic hole filling, and reducing mesh. The software can handle large models with millions of polygons, so you can extract and evaluate shape and form.

Mixed Modeling Environment

Integrate NURBS data into mesh and scan data. With Alias, you can evaluate and refine the resulting hybrid model without resurfacing an entire model—helping to save time and effort.

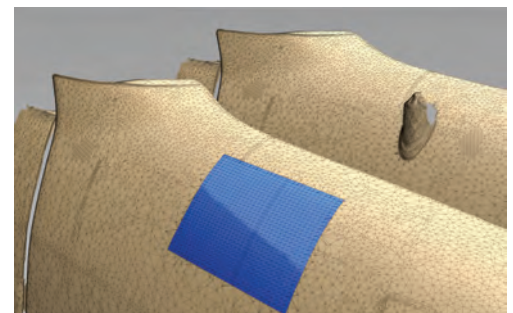
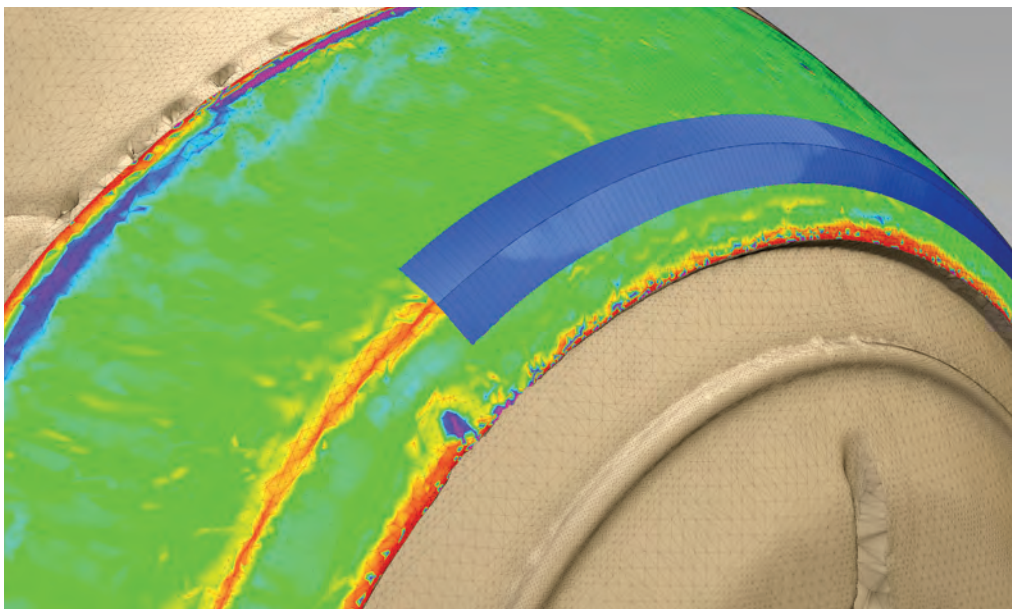


Feature Extraction

Spend less time creating and updating surface models. This specialized tool enables you to quickly extract feature information from scan data.

Surface Reconstruction

Automate the multistep process of filling holes in scan data. Alias software recognizes exterior curvature through user-defined sections by generating a mesh patch.



Visualization and Communication

Express the emotional character of your design and communicate your design intent to customers and team members.

Real-Time Visualization

Autodesk Alias software reduces the need for time-consuming renderings by providing immediate visual feedback. Quickly save high-resolution images of your modeling window without running a full software rendering. Use image-based lighting to increase realism and evaluate surfaces and design forms. Alias supports material color, texture, glow, incandescence, bump, and displacement mapping.



Photorealistic Renderings

Using photorealistic rendering capabilities in Alias software, you can create images for print, video, animations, or interactive presentations. Alias raycast and ray-trace renderers incorporate ambient occlusion calculations (soft shadows) and high dynamic range imaging (HDRI) for added realism.



Image courtesy of Cosmic Motors, LLC

Annotation Tools

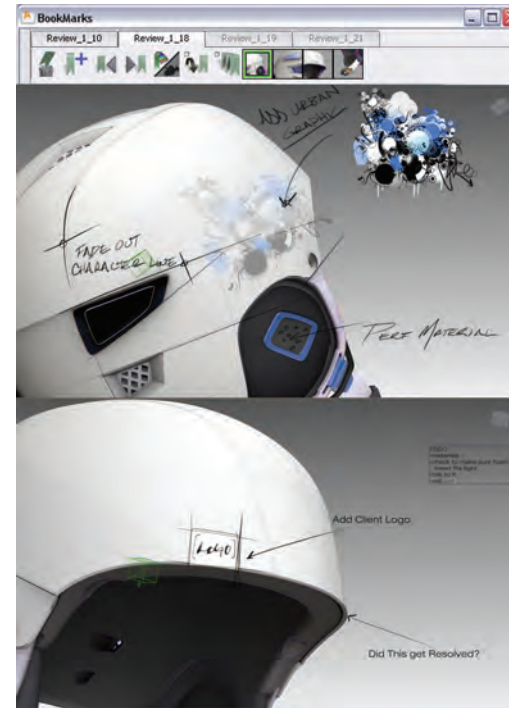
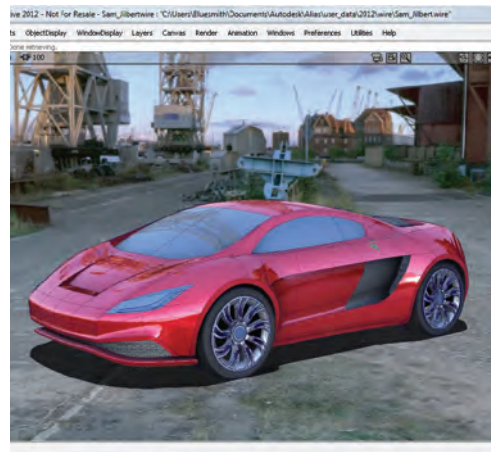
Evaluate and review designs with ease. Take advantage of your entire screen space, working only with necessary interface aspects. Alias software provides a full set of annotation tools, including bookmarks, full-screen capabilities, and pencils and markers.

Reference Data Workflow

The Reference Manager gives teams the ability to review massive amounts of 3D geometry and interact directly with detailed digital models, while maintaining interactive performance. Take advantage of fast loading speed and alternative shading—such as diagnostic shading, transparency, and visual cross sections—to generate and compare multiple design variations for engineering and design reviews.

Built-in Environments and Lighting

Tell the story of your product design in context with real-time, interactive 3D product visualizations. Render shading based on an omnidirectional light source, take advantage of ambient occlusion and soft shading, or use HDRI as the light source for more realistic images for evaluating, presenting, and marketing designs. Autodesk Alias software also features geometric environments with built-in HDRI lighting and reflections, making it easier to create stunning product visualizations in realistic settings.

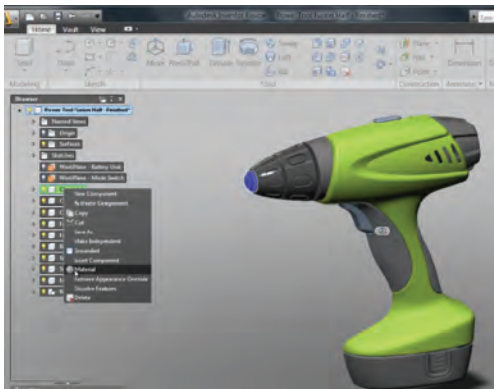


Collaboration and Interoperability

Effectively share Class-A and production surfaces with engineering teams that can reuse your data to avoid having to re-create your designs.

Autodesk Interoperability

Collaborate easier with designers and engineers using other Autodesk® applications, such as AutoCAD® software, using the DWG™ data format. Bidirectional interoperability between Alias and Autodesk® Inventor® software enables Alias users to directly read Inventor data, while Inventor users are able to directly read native Alias .wire files, including: surface, shell, solid, and curve data. Autodesk® 3ds Max® Design users can now import .wire files natively into 3ds Max Design as Bodies objects, preserving object names, hierarchies, layers, and material names.



DWF File Format

Create DWF™ files from Alias data with a single click. The DWF format protects the integrity of a design so you can precisely publish, render, and print even the most complex digital models.

Model Verification

Bridge concept design and manufacturing with improved sharing of your design data. Autodesk® Inventor® Fusion software* expands the capabilities of Alias for validating, repairing, and making models CAD-ready for engineering. Inventor Fusion helps make it easier to test geometry created in Alias software to predict and diagnose problems when transferring to mechanical CAD systems.

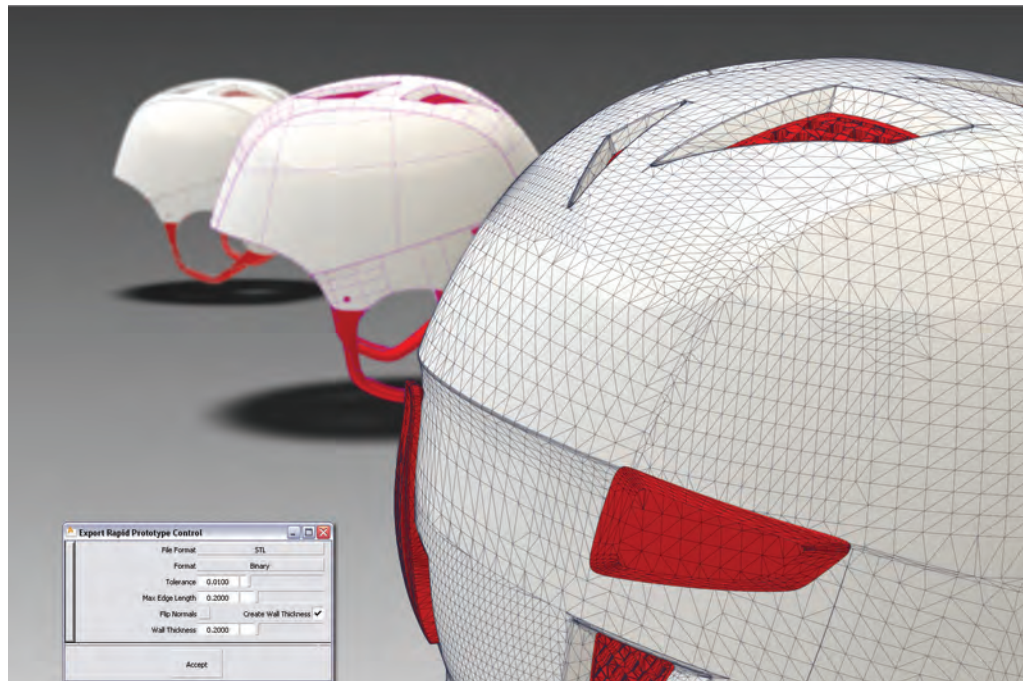


Rapid Prototyping

Build physical prototypes more efficiently from digital models. With rapid prototyping, you can develop and refine designs before committing to production. Print in 3D using STL output for stereolithography, and export data to computer numerical control machines. Alias software supports 3D printing in color with ZPR file format (Microsoft® Windows® only).

Reliable Data Exchange

Exchange digital design data with engineering teams using fast, high-quality CAD translators for standard file formats such as DXF™, EDF, IGES, and STEP. You can also integrate Alias software into your development pipeline with Autodesk® DirectConnect data translators, offering bidirectional sharing with CAD software packages such as CATIA®, Siemens® NX® PTC®, ICEM® EDF, PTC Granite®-based systems (Creo™, Pro/E®), Siemens® JT, and SolidWorks® software.



*Autodesk Inventor Fusion software is included with the purchase of a license for either Autodesk Alias Design or Autodesk Alias Automotive software.

Autodesk Alias Products

Autodesk Alias products, part of the Autodesk solution for Digital Prototyping, power your creative design process with advanced sketching, modeling, and visualization tools that help you create innovative designs—faster than your competition. Products include Autodesk Alias Design, Autodesk Alias Automotive, and Autodesk Alias Surface software.

Autodesk Alias Design

Autodesk Alias Design is 3D design software tailored for industrial designers who control the creative [product design](#) process: from the initial concept sketch to the final surfaces that are shared with engineering. Industrial designers can quickly go from compelling visual communications to concept modeling to production-quality models all within a hybrid 2D-to-3D workflow. Alias Design software enables industrial designers and creative professionals to collaborate across the variety of teams within product development, from marketing to engineering with its industry-leading sketching, modeling, and visualization tools that help you create, communicate and drive innovative designs that consumers want.

Autodesk Alias Automotive

Autodesk Alias Automotive software is one of the leading applications for automotive design, styling, and technical surfacing. The choice of leading automotive styling studios throughout the world, Alias Automotive software provides a comprehensive set of sketching, modeling, visualization, and analysis tools for the entire vehicle design process. With advanced workflows from visual communication through Class-A surfacing, the software helps automotive companies produce design iterations quickly, reduce rework, and bring innovative vehicles to market faster than before.

Autodesk Alias Surface

Autodesk Alias Surface software offers a full set of dynamic 3D surface modeling capabilities and tools that enable digital modelers to evolve design concepts into production surface models for consumer product design and high-quality Class-A surfaces for automotive design and styling. Alias Surface software also supports advanced reverse-engineering capabilities, enabling digital modelers to quickly go from mesh data to high-quality Class-A surfaces ready for engineering detail design.

	Alias Design	Alias Surface	Alias Automotive
Capabilities			
Concept Exploration			
Complete Sketching and Illustration Toolset	•		•
Intuitive Paint User Interface	•		•
Integrated 2D/3D Environment	•		•
Autodesk® SketchBook® Designer	•		•
Design Modeling			
Dynamic Shape Modeling	•	•	•
Flexible Modeling	•	•	•
3D Sculpting	•	•	•
Automated Modeling Tools	•	•	•
Precision Surface Modeling			
Advanced Surface Creation Tools		•	•
Explicit Surface Control		•	•
Trimmed Surface Paradigm	•	•	•
Align Tool	•	•	•
Surface Evaluation		•	•
Reverse Engineering			
Scan Data Workflows		•	•
Feature Extraction		•	•
Hybrid Modeling		•	•
Surface Reconstruction		•	•
Visualization and Communication			
Real-Time Visuals	•	•	•
Image Based Lighting	•	•	•
Photorealistic Renderings	•	•	•
Annotation Tools	•		•
Reference Data Workflow	•	•	•
Collaboration and Interoperability			
Autodesk Interoperability	•	•	•
Reliable Data Exchange	•	•	•
DWF™ File Format	•	•	•
Rapid Prototyping	•	•	•
Autodesk® Inventor® Fusion	•		•

Digital Prototyping for the Manufacturing Market

Autodesk is a leading supplier of engineering software, providing companies with tools to design, visualize, and simulate their ideas. By putting powerful Digital Prototyping technology within the reach of mainstream manufacturers, Autodesk is changing the way manufacturers think about their design processes and is helping them create more productive workflows. The Autodesk approach to Digital Prototyping is unique in that it is scalable, attainable, and cost-effective, which allows a broader group of manufacturers to realize the benefits with minimal disruption to existing workflows, and provides the most straightforward path to creating and maintaining a single digital model in a multidisciplinary engineering environment.

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Autodesk Education

Autodesk offers students and educators a variety of resources to help ensure that students are prepared for successful design careers. Educators can access design software, curricula, and teaching resources, while students can access free* software, training videos, design competitions, and career resources. Anyone can get expert guidance at an Autodesk Authorized Training Center (ATC®) site, and validate skills with Autodesk Certification. Learn more at www.autodesk.com/education.

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