Autodesk®
Alias® Surface

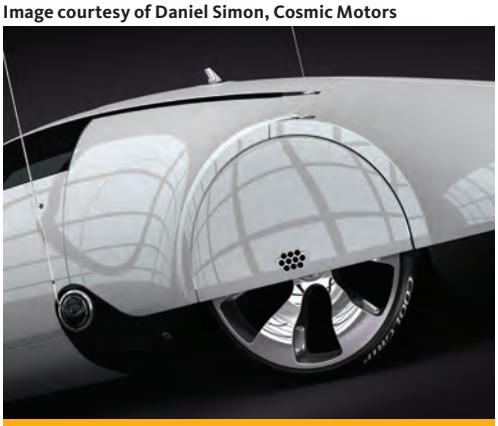
Perfect your designs.

Autodesk®

Master Complex Shapes

Model high-quality production surfaces with speed and control. Autodesk® Alias® Surface gives you all the advanced surface creation tools you need to create high-quality surfaces ready for manufacturing.

Image courtesy of Daniel Simon, Cosmic Motors



Contents

Perfect Your Designs

Define inspiring and ergonomic shapes that meet functional requirements, with the powerful tools in Autodesk Alias Surface software. Alias Surface helps you sculpt 3D models to achieve the perfect union of aesthetics and engineering. Power your creative process with industry-leading curve-based and direct modeling tools that help you fine-tune designs in a single software environment, in less time.

Communicate Your Vision

Alias Surface makes it easy to create highly realistic models. You can shade and light models to communicate your design vision more clearly, and confirm that your surfaces meet exacting standards. Reviewers can evaluate high-quality imagery that reflects a range of materials and colors. The result is quick and confident design-review decisions—without time-consuming renderings.

Speed Up Processes

When engineering teams need to redo surfaces, it delays projects and can result in unintended changes to your models. Alias Surface supports a highly streamlined workflow that lets you control design intent further in the product development process. You can exchange design data with engineering CAD software, such as Autodesk® Inventor®, to preserve design integrity. And you create such high-quality, Class-A surfaces in Alias Surface that engineering teams don't need to recreate them.

Specialized Design Tools

Alias Surface offers a full set of dynamic modeling capabilities for shape development, refinement, and control. The software's functionality helps meet your requirements for:

- Design modeling
- Precision surfacing modeling
- Reverse engineering
- Visualization and communication
- Process integration
- Productive environment

Image courtesy of Technicon Design

Design Modeling

Take your 3D models to the next level. Evolve concepts through a creative, iterative process.

The concept development phase demands close collaboration between designers and engineers to produce concepts that are new, yet technically feasible.

Flexible Modeling

Take advantage of a range of product modeling techniques to visualize any form. Autodesk® Alias® Surface combines fast, repeatable curve-based modeling tools with the ability to directly sculpt 3D models.

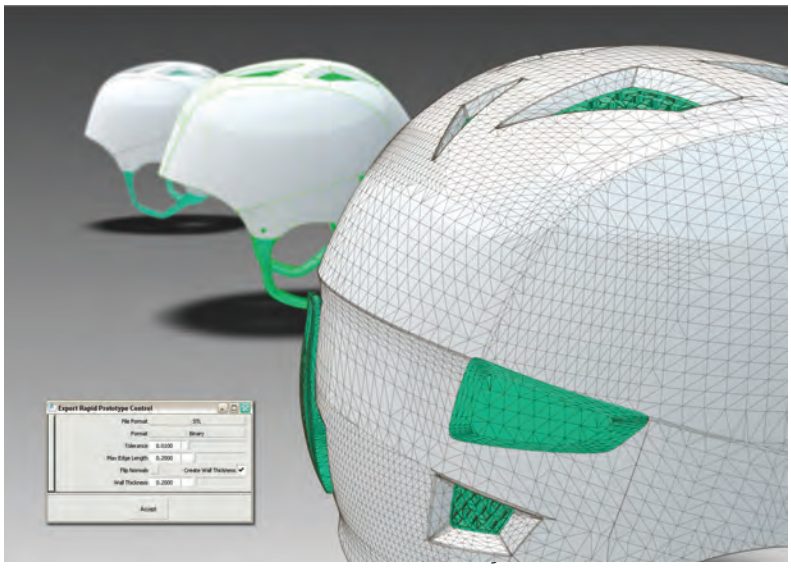
Dynamic Shape Modeling

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—Sculpt geometry by manipulating a customizable lattice created around an object.
- Transformer Rig—Use curves and surfaces as controls to modify or constrain portions of existing geometry.
- 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.

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 by exporting data to computer numerical control (CNC) machines. Alias Surface supports 3D printing in color.



Precision Surface Modeling

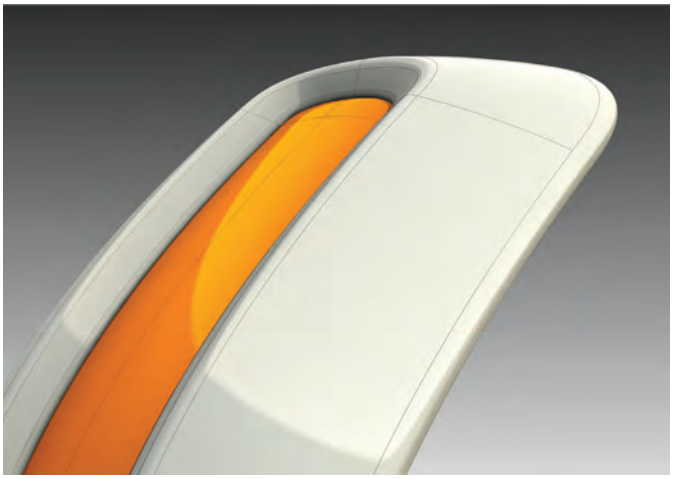
Develop the Class-A surfaces engineering teams need to create tooling. Dynamic modeling capabilities help you develop Bezier or NURBS geometry in less time.

Advanced Surface Creation Tools

Advanced tools for creating surfaces ensure that your surfaces maintain positional, tangent, or curvature continuity with surrounding surfaces—for high-quality results ready for manufacturing.

Semiautomated Surface Modeling Tools

Do surfacing work faster. Autodesk Alias Surface provides semiautomated tools for creating clean, complex surfaces ready for tooling. For example, you can create a fillet and accompanying flange in a single operation.



Explicit Surface Control

Maintain control over surfaces, creating the lightest, highest-quality geometry. Choose single-span (Bezier) geometry or multispan nonuniform rational B-spline (NURBS) geometry, then define the number of spans and the degree of created surfaces.

Curve on Surface Paradigm

Precisely trim and form edges of new surfaces. Share trimmed geometry among modelers while retaining precision.

Direct Surface Modeling

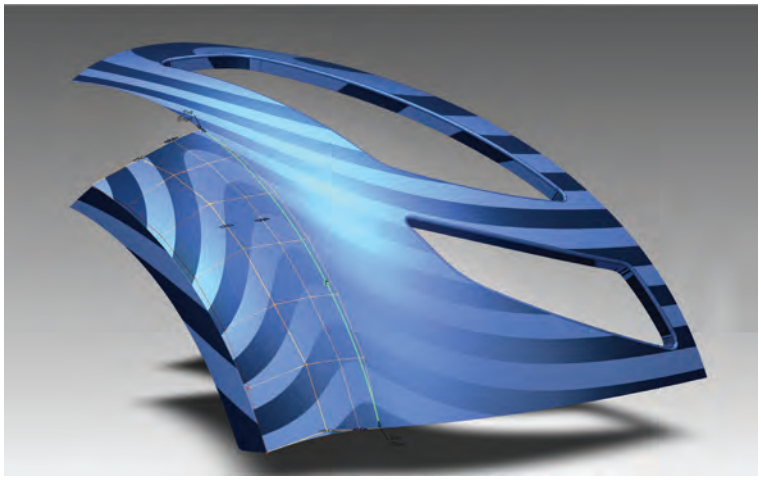
Sculpt surfaces directly by adjusting surface control vertices. Alias Surface's curve-based tools let you define a shape at its edges, or you can use direct modeling to adjust the shape at any point. Maintain complete control of Bezier surfaces to achieve the exact form and surface quality you need.

Surface Evaluation

Verify the quality of created surfaces, including curvature and radii analysis. This ensures that geometry can be used by CAD programs and will meet manufacturing requirements.

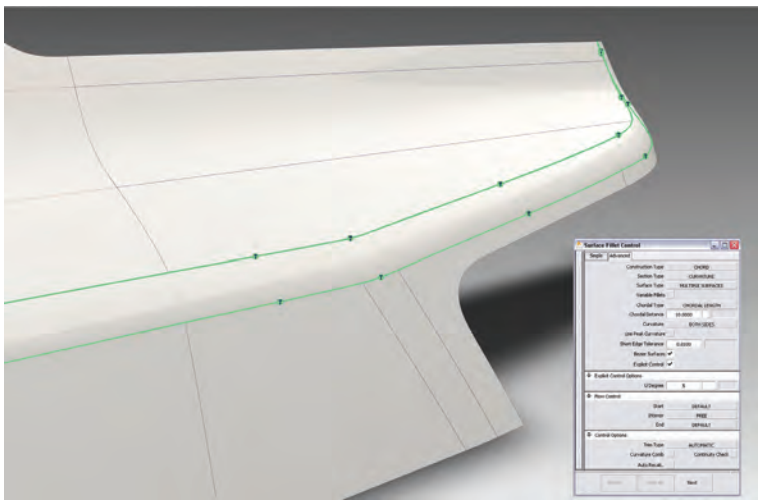
Align Tool

Accurately line up surfaces and curves, directly controlling geometry alignment. Achieve high-quality surface modeling and Class-A surfaces with new math capability for surface construction.



Bezier Surface Fillet

Create and manipulate Bezier surface fillets to address Class-A surfacing requirements. Provide superior surfaces with strict Bezier output.

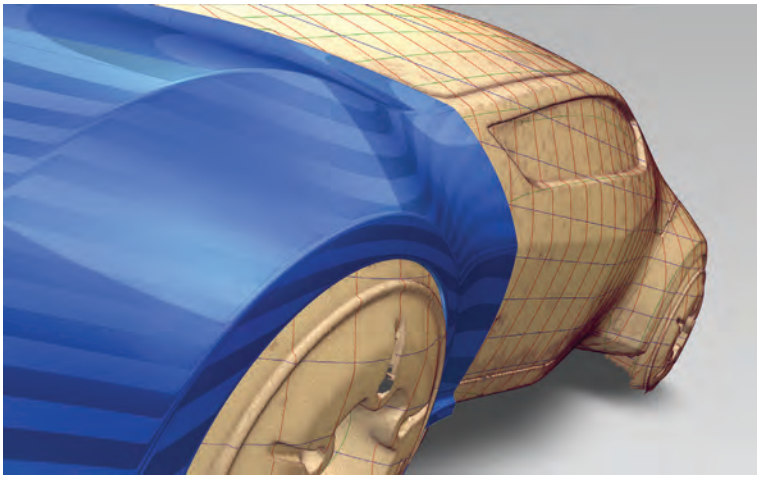


Reverse Engineering

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

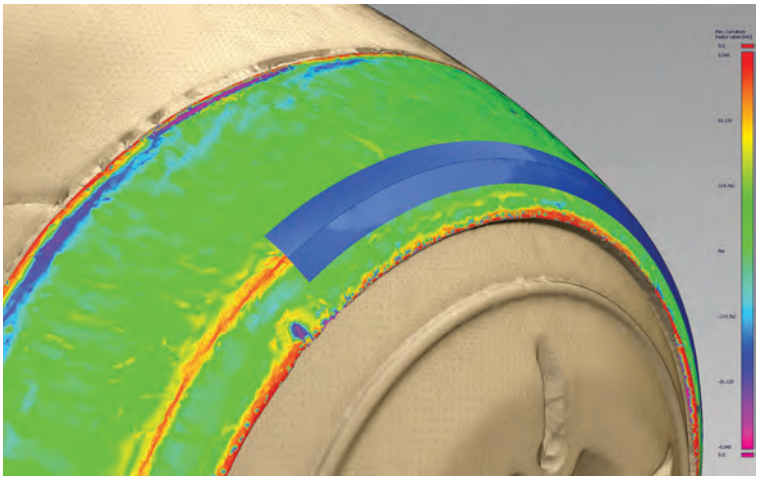
Scan Data Workflows

Import and configure data from 3D scanners to visualize and reverse-engineer consumer product or vehicle models. Alias Surface helps you simplify and remove 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.



Feature Extraction

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

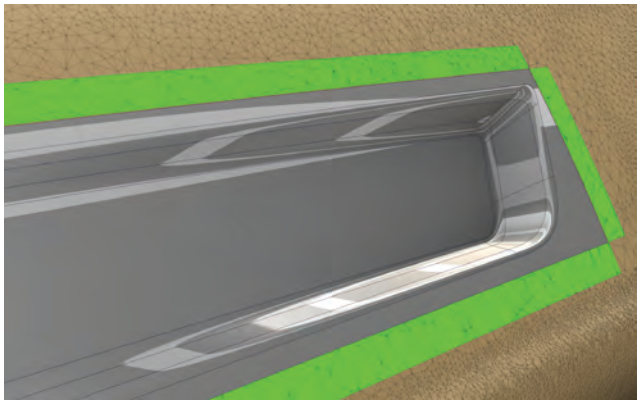


Analysis Tools

Get help fine-tuning your models with Alias Surface analysis tools. They provide instant numerical or graphical feedback on surface quality.

Hybrid Modeling

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



Surface Reconstruction

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

Visualization and Communication

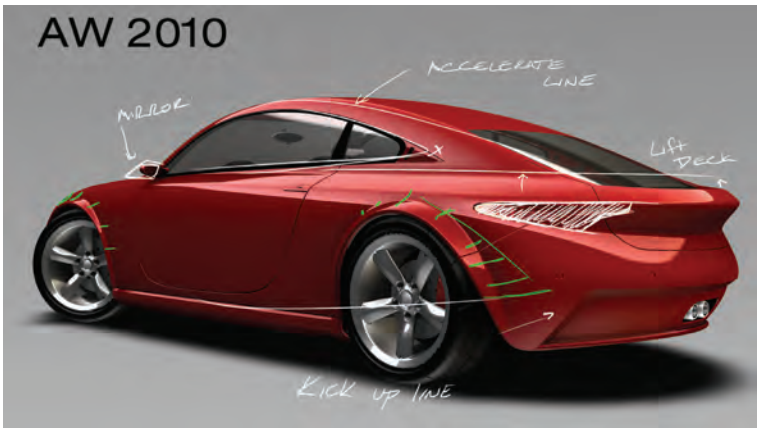
Communicate your design intent—bring your ideas to life. Help team members and customers understand and visualize designs, so they can easily evaluate design options.

Interactive Shading

Use shading models to enhance realism and to evaluate surfaces and design form. Autodesk Alias Surface reduces time-consuming renderings by providing immediate visual feedback on your designs. The software supports material color, texture, glow, incandescence, bump, and displacement, and lets you quickly verify surface conditions such as curvature maps, zebra stripes, and draft angles.

Annotation Tools

Evaluate and review designs with ease. Take advantage of your entire screen space to work with just the necessary interface aspects. Alias Surface provides a full set of annotation tools such as bookmarks, full-screen capabilities, and pencils and markers.



Compelling Output

Get high-resolution images without a full software rendering. With Alias Surface, you can instantly save high-resolution images of any modeling window. Compose images that display wireframes, canvas planes, or fully shaded models to create turntables or 360-degree interactive QuickTime® VR files.

Software Rendering

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

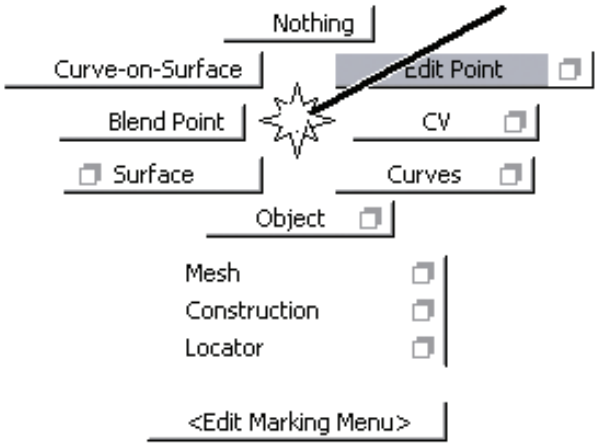
Reference Data Workflow

Generate and compare an unlimited number of design variations for engineering and design reviews. The Reference Manager lets teams review massive amounts of 3D geometry and interact directly with detailed digital models.

Productive Environment

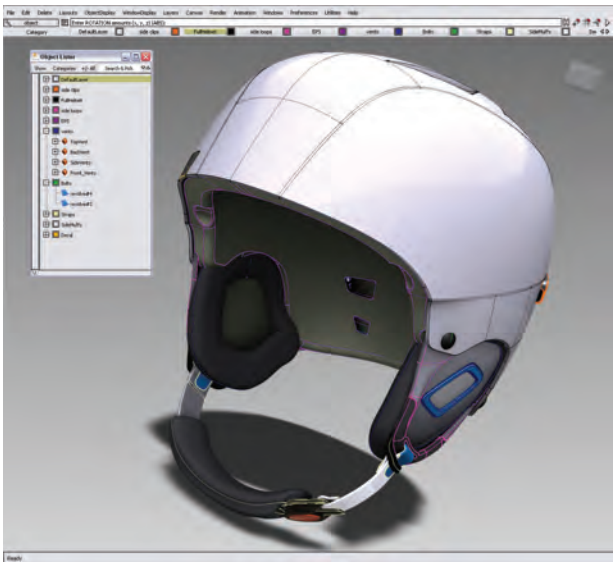
Shorten the learning curve and speed your workflow with the intuitive Autodesk Alias Surface user interface.

Marking Menus
Quickly select commands without looking away from the design. Patented marking menus let you use context-sensitive gestures to select commands.

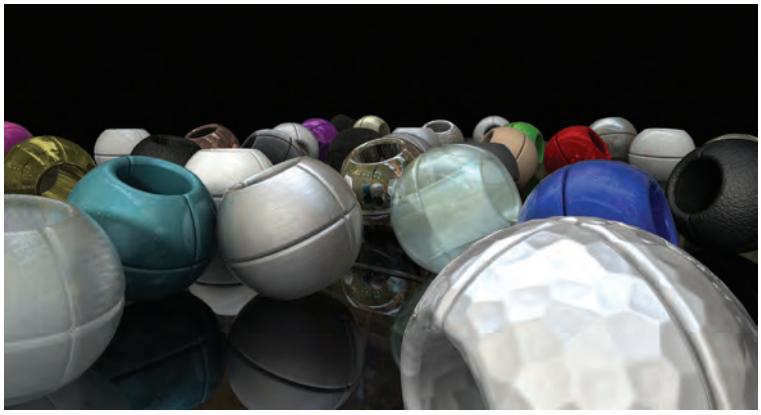


Customizable Interface
Customize your user interface—including hotkeys, tool displays, and marking menus—to suit any workflow.

Data Organization
Improve workflow and performance by organizing work and speeding navigation through complex models. Alias Surface helps you categorize and organize model components into layers, for more efficient navigation.



Unified Shading Environment
Click through tasks faster with task-centric marking menus that reduce the use of dialog boxes. You can choose materials and assign shaders directly on surfaces with only a few clicks.



Mac OSX Operating System
Use Alias Surface 64-bit on your Apple® Mac®.

Windows Vista Support
Use Alias Surface 32-bit or 64-bit with Microsoft® Windows Vista®.

Process Integration

Reliable data exchange with CAD software is important throughout the design process. Imported engineering data can be used as references for sketching and modeling. After the design model is created and approved, data can be exchanged with CAD software to help preserve design integrity in the engineering phase.

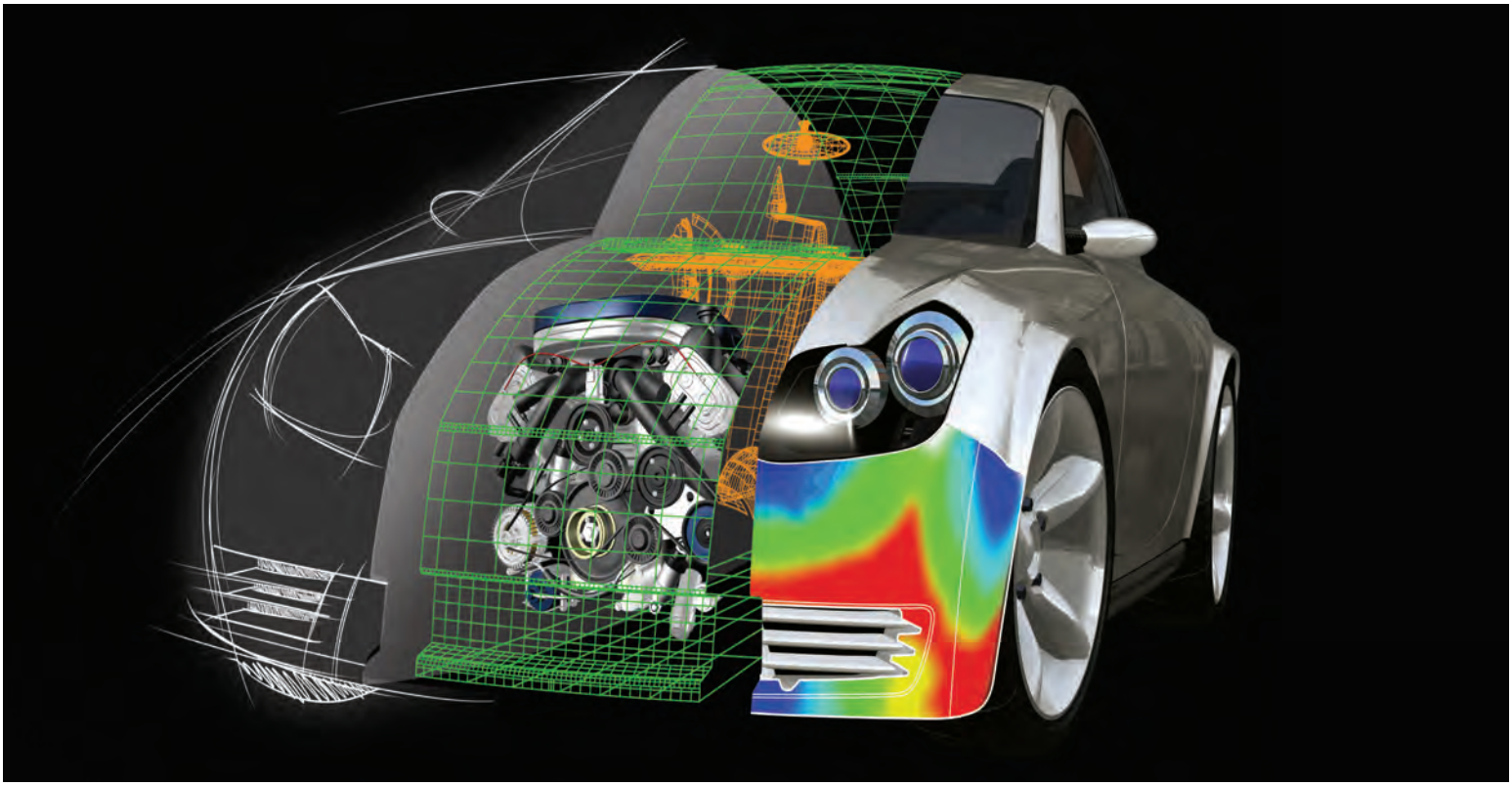
Data Exchange
Exchange digital design data with engineering teams using fast, high-quality CAD translators for industry-standard data formats such as DXF™, IGES, and STEP.

Data Exchange with Autodesk Manufacturing Products
Exchange data with mechanical design and engineering products, such as Autodesk Inventor software, using the industry-leading DWG™ data format. The Alias Direct Reader add-in for Inventor makes it possible to directly read a native Alias. wire file in Autodesk Inventor. The translator reads surfaces, shells, solids, and curves from the .wire file. Autodesk Alias Surface also directly reads native Autodesk Inventor data.

DirectConnect Data Translators
Integrate Alias Surface into your development pipeline by exchanging data bidirectionally with CAD software packages such as CATIA®, UGS® NX, Pro/ENGINEER®, PTC Granite®, JT, and SolidWorks®.

Model Verification
Test geometry created in Alias Surface to predict and diagnose problems when transferring to CAD systems such as CATIA, Unigraphics®, and Pro/ENGINEER.

DWF File Format
Create DWF™ files from Alias Surface data with a single click. DWF protects the integrity of a design and allows for precise publishing, rendering, and printing of even the most complex digital models.



Autodesk Alias Product Line

The Autodesk® Alias product line, part of the Autodesk solution for Digital Prototyping helps optimize the creative design process with industry-leading sketching, modeling, and visualization tools that help you quickly realize ideas in a single environment. The product family includes Autodesk® Alias® Design, Autodesk® Alias® Surface, and Autodesk® Alias® Automotive.

Autodesk Alias Design
Autodesk® Alias® Design, part of the Autodesk solution for Digital Prototyping, is for consumer product designers who control the entire design process—from ideation to the final surfaces that are passed to engineering. It enables designers to rapidly develop and communicate product design concepts using sketches, illustrations, photorealistic renderings, and animations.

Autodesk Alias Surface
Autodesk® Alias® Surface software, part of the Autodesk solution for Digital Prototyping, offers a full set of dynamic 3D modeling capabilities that enable virtual modelers to evolve concept models and scan data into high-quality production surfaces for consumer product design and Class-A surfaces for automotive design and styling.

Autodesk Alias Automotive
Autodesk® Alias® Automotive software, part of the Autodesk solution for Digital Prototyping, is an industry-leading application for automotive design and styling and the choice of leading automotive styling studios throughout the world. The software provides a comprehensive set of visualization and analysis tools for the entire shape-definition process, from concept sketches through Class-A surfacing.

Task	Deliverables	Product
Creation and Communication of Design	• Sketches • Illustrations • 3D concept models • Production models • Rapid prototypes • Visualization • Animation	Autodesk® Alias® Design
Advanced Surfacing and Reverse Engineering	• Scan Data • Class-A Surfaces • Reverse Engineering • Advance Evaluation • Rapid Prototypes • Visualization	Autodesk® Alias® Surface
Transportation Design	• Scan Data • Modified scan data • Class-A Surfaces • Reverse Engineering • Advance Evaluation • 3D concept models • Rapid prototypes • Visualization • Sketches • Illustrations • Animations	Autodesk® Alias® Automotive

Digital Prototyping for the Manufacturing Market

Autodesk is a world-leading supplier of engineering software, providing companies with tools to experience their ideas before they are real. 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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