

Autodesk®

AliasStudio™ 2009

Unite creativity and
craftsmanship.



Autodesk®

Transport Your Design to New Levels

The Autodesk® AliasStudio™ product line provides a complete set of tools for the creative design process. The scalable product line provides industry-leading surface description capabilities supported by best-in-class sketching and visualization tools that let you capture and communicate design intent.

Image courtesy of Daniel Simon, Cosmic Motors



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Design Drives Success

Design, more than any other factor, has the power to influence purchase decisions that consumers make. In today's competitive global marketplace, designers are under pressure to come up with new, innovative designs that address both form and function—and to do so quickly. The Autodesk AliasStudio product line is the only design software that addresses the unique creative requirements of the entire industrial design workflow, combining creativity with craftsmanship. It has the most powerful tools for surface definition and optimizes the design process with industry-leading sketching, modeling, and visualization tools that quickly bring ideas to reality in a single environment and in less time.

Capture and Communicate Digital Design Intent

Communication is a key component of design. AliasStudio provides a complete set of tools for concept design and communication, reducing the time required to create high-quality imagery for clear, efficient, and persuasive visual communication. AliasStudio helps designers tell their story clearly and effectively in order to sell ideas and avoid holding up projects waiting for design review decisions.

Own the Design

AliasStudio enables designers to own their designs further into the development process with tools to efficiently refine model details and create production-quality data for downstream use. Designers retain ownership of designs and incorporate changes later in the process, increasing the flexibility of design decisions and preventing design intent from being altered or lost during the engineering phase. AliasStudio also supports collaboration between designers and engineers to help ensure that both aesthetic and functional requirements are efficiently addressed in design solutions.

Specialized Design Tools

AliasStudio provides the tools that work the way users do, with functionality that meets specific design requirements for

- Concept exploration
- Design modeling
- Visualization and communication
- Precision surface modeling
- Reverse engineering
- Productivity
- Process integration



Backpack for Funsports by novakonzept

Concept Exploration

Concept exploration involves the application of problem solving and experimentation in pursuit of innovative and improved solutions to the challenges of the design brief.

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

ENHANCED Complete Sketching and Illustration Toolset

Take advantage of freehand skills to capture and communicate ideas without switching applications. AliasStudio provides a full set of tools for sketching, illustration, and image editing. This toolset includes familiar tools such as pencils, paintbrushes, airbrushes, markers, erasers, and special texture and effects brushes.



Concept Exploration

Paint User Interface

Move easily from other 2D tools to AliasStudio software. At startup, select a predefined setup to customize the user interface for doing 2D design work. This simplifies and refines AliasStudio for an efficient paint workflow. A new aspect of the interface enables users to instantly access common brush controls using a dynamic hot spot interface that appears directly under the cursor. Hot spots amalgamate common hotkey functions, reducing the need to access the keyboard and helping designers stay focused.

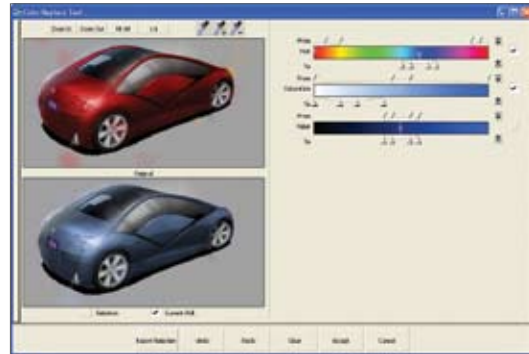


Advanced Sketching Tools

Reduce the time required to draw symmetrical objects, and provide instant feedback on a drawing's proportions. The symmetric drawing feature enables users to interactively duplicate symmetric brush strokes along a single line of symmetry or multiple lines of radial symmetry, and predictive strokes for capturing perfect lines, circles, and ellipses.

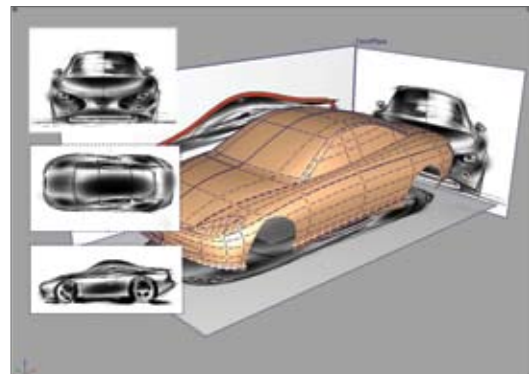
ENHANCED Image Editing and Modification

Create variations of designs using a full set of modification tools. The suite of color adjustment tools lets users tweak colors and quickly explore color alternatives. The deform and warp tools provide the control to alter the proportion or entire character of an image, enabling designers to make subtle corrections or to develop design variations quickly.



Integrated 2D/3D Environment

Create sketches in real-world scale and gain the flexibility to draw directly over imported 3D CAD data to make sure designs are feasible. With this feature, designers can sketch what is hard to model and model what is hard to sketch.



Design Modeling

Design concepts evolve from ideas to reality as they are developed through a creative, iterative process. The 3D models are refined to evaluate details of the design and converge on a solution that satisfies the project goals.

Flexible Modeling

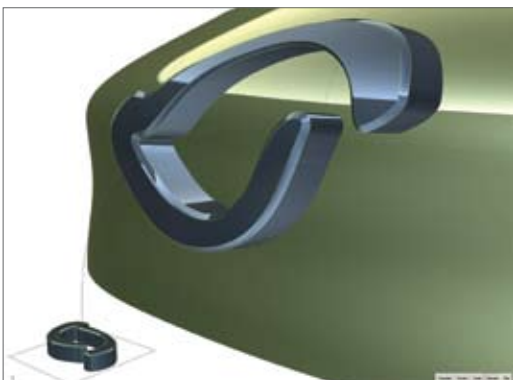
Take advantage of different modeling techniques to describe any form. The AliasStudio surface modeling tools combine the repeatability and speed of curve-based modeling tools with the ability to directly “sculpt” the 3D model.



ENHANCED Dynamic Shape Modeling

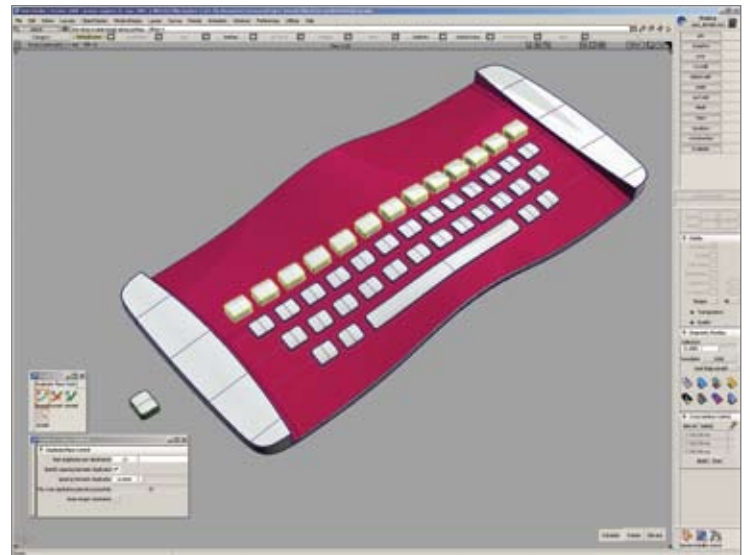
Quickly modify and experiment with shapes at any stage of the design process. Explore variations of existing 3D forms without rebuilding any geometry, or make modifications in real time in design reviews. This feature includes five powerful tools for dynamically shaping objects:

- Lattice Rig—Sculpt geometry by manipulating a customizable lattice that is created around the object.
- Transformer Rig—Use curves and surfaces as controls to precisely modify or constrain portions of existing geometry.
- Bend—Bend geometry using a curve to control the deformation.
- Twist—Twist geometry about a single axis curve.
- Conform—Deform geometry to conform to the shape of another surface.



Duplicate Place

Create repetitive geometry that follows surface contours. This editable, history-based duplication feature enables designers to place geometry onto other geometry.



Rapid Prototyping

Build physical prototypes more efficiently with the freedom to iterate when digital models are used. This capability helps users develop and refine designs before committing to production. With AliasStudio, 3D printing is possible using STL output for stereolithography or by exporting data to computer numerical control machines.

Visualization and Communication

Visualization aids understanding and brings ideas to life. Visual communication is the designer's trade skill to evaluate design options, as well as to elicit responses, communicate intent, and analyze concepts.

ENHANCED Interactive Shading

Get immediate visual feedback while modeling and evaluating surface quality and design form. Increase the quality of shading to achieve high levels of realism, reducing the need to make many time-consuming rendered images. AliasStudio software now supports user-defined anti-aliasing quality to add realism to models, as well as glow, incandescence, and environment backgrounds.



Annotation

Concentrate on the evaluation and review of concept models by taking advantage of the entire screen space to work with just the necessary interface aspects. AliasStudio provides a full set of annotation tools, including bookmarks, full screen mode capabilities, and annotation brushes.

Compelling Output

Instantly save high-resolution images of any modeling window and compose images that display the wireframe, canvas planes, or fully shaded models to create turntables or 360 interactive QuickTime® VR files.

ENHANCED Software Rendering

Create high-quality rendered imagery for presentations and design reviews. In addition, use the photorealistic rendering capabilities to create images for print, video, or interactive media. The AliasStudio renderers (raycast and raytrace) incorporate ambient occlusion calculations (soft shadows) and high dynamic range imaging (HDRI) support for added realism.



Visualization and Communication

Ambient Occlusion

Render shading based on an omnidirectional light source to create general areas of shadow on models. Ambient occlusion is a crucial element in creating a realistic environment with ambient lighting. It provides the soft shading similar to that of other complex, indirect lighting techniques.

Image-Based Lighting

Use high dynamic range images (HDRI) as the light source for interactive visualization and rendering. HDRI support enables users to create more-realistic images for design evaluation, presentation, and marketing.

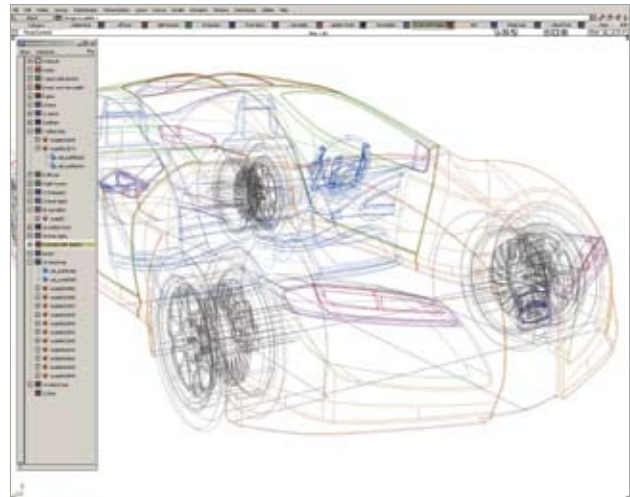


Animation

Create dynamic design presentations, and demonstrate functionality faster than building a working prototype—for less cost. Animation features enable properties of objects to be changed over time. Display these properties in real time or as rendered images. Create repetitive geometry that follows surface contours. This editable, history-based duplication feature enables designers to place geometry onto other geometry.

Reference Data Workflow

Create and compare unlimited numbers of design variations in the same environment where design creation takes place. The Reference Manager enables design teams to review massive amounts of 3D geometry for both background engineering and design reviews. Replace static 2D images for design evaluation by interacting with detailed models directly.

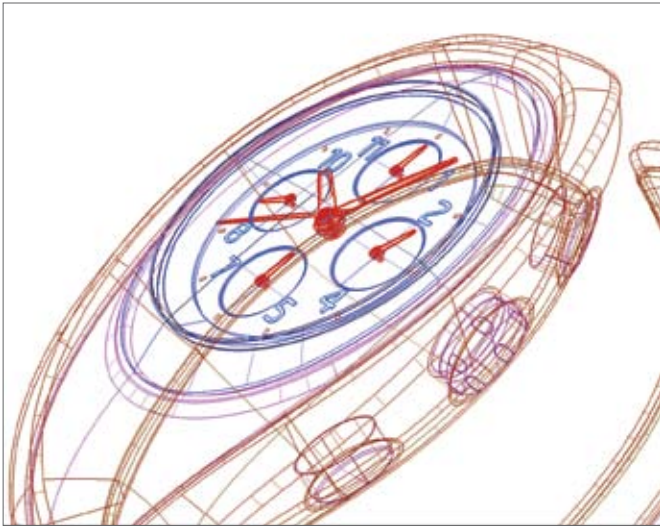


Precision Surface Modeling

This phase of the design process is geared toward defining each aspect of the product, so that marketing and engineering can sign off on the design for eventual production. During this phase, high-quality surface models can be created and evaluated, and then provided to engineering for the creation of tooling. For automotive design, surfaces are modeled to meet the exacting standards for Class-A exterior surfaces.

Advanced Surface Creation Tools

Maintain positional, tangent, or curvature continuity with surrounding surfaces for high-quality results that are ready for manufacturing. These production-proven surfacing tools are designed for every possible modeling situation and accelerate the process of creating high-quality surfaces.



Semiautomated Modeling Tools

Create the type of clean, complex surface results that satisfy engineering requirements and reduce the time required to add finishing details to a design model. For example, create a fillet and an accompanying flange in a single operation.



Explicit Surface Control

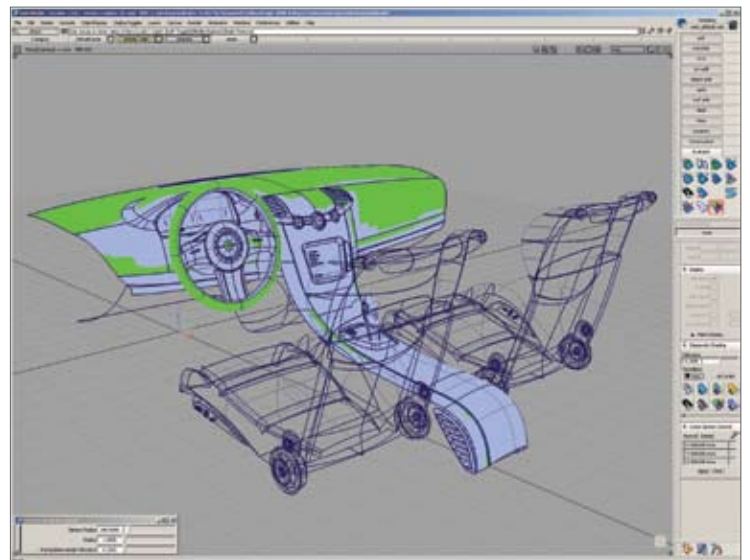
Maintain control over surfaces, creating the lightest, highest-quality geometry. Choose single-span (Bézier) geometry or multispans NURBS geometry, depending on the complexity of the shape to be modeled. Surface creation tools include the option to explicitly define the number of spans and the degree of created surfaces.

Curve on Surface Paradigm

This feature provides a precise method of trimming and working with surfaces. Share trimmed geometry among modelers while retaining precision—especially valuable if the trimmed surfaces require modification.

Direct Modeling

Gain control over surface shapes to achieve the exact form and surface quality required, with accurate tools for manipulation and smoothing of surface vertices and hulls. Curve-based surfacing tools define the shape at edges. Use direct modeling to adjust the shape at any point within the surface.

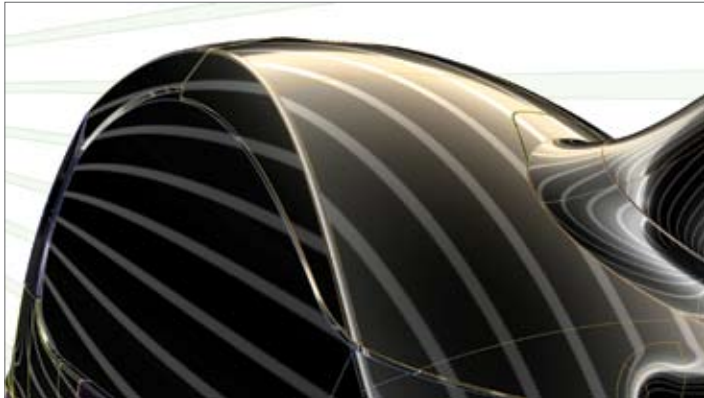


Contact Analysis—Test for Auto Safety

Precision Surface Modeling

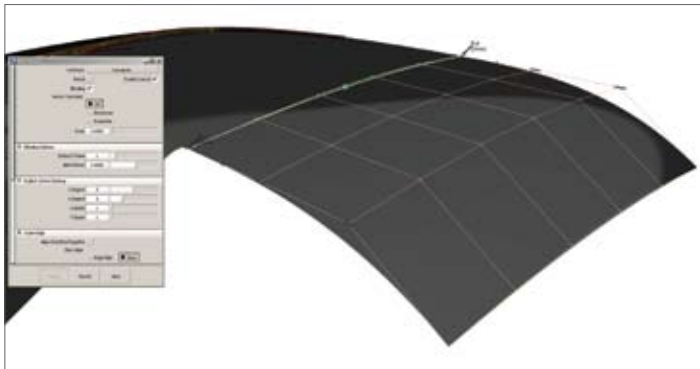
Surface Evaluation

Verify the quality of created surfaces, including curvature and radii analysis, to help ensure that geometry can be used by downstream CAD products and meets manufacturing requirements. A specialized contact analysis tool provides an automatic test for safety regulations that restrict sharp radii on interior automotive surface areas.



NEW Align Tool

Cleanly and accurately align surfaces and curves for quality surface modeling and Class-A surfacing. The Align tool provides a focused, intuitive interaction that is supported by a new math capability that delivers optimal surface construction.

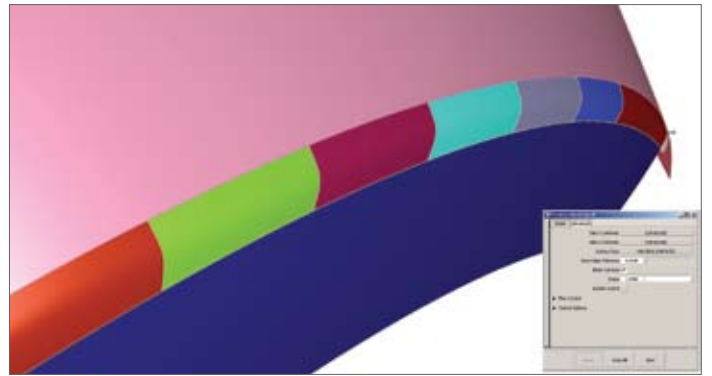


NEW Task-Based Modeling

Increase overall productivity with improvements to construction plane workflows, integrated direction in tools, and navigation controls that provide focused task-based modeling.

ENHANCED Bézier Surface Fillet

Create and directly manipulate Bézier surface fillets to address Class-A surfacing requirements, providing superior surface definition with strict Bézier output. A select set of surfacing tools has been enhanced to create Bézier surfaces.



Reverse Engineering

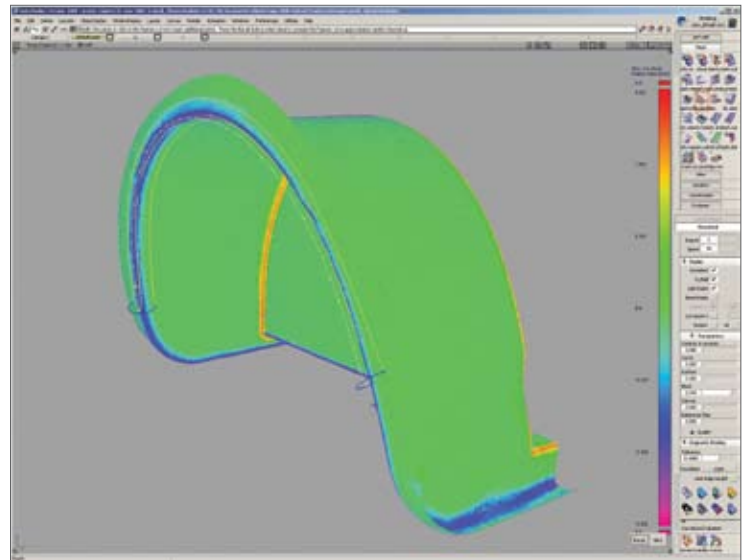
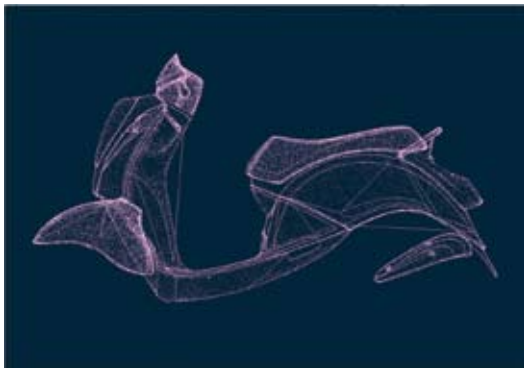
AliasStudio facilitates the workflow between digital modeling and scanned physical prototypes, with fast handling of large amounts of scan data and effective tools to extract and evaluate shape information.

Scan Data Workflows

AliasStudio uses meshes—highly efficient geometric representations for handling large models with millions of polygons—for a faster workflow when using large scans, such as those from automotive interiors. Simplify and remove pieces of scan data required to work efficiently. This complete set of tools for importing and configuring data from 3D scanners for visualization and reverse engineering includes cutting, smoothing, automatic hole filling, and mesh reduction.

Feature Extraction

Reduce the time required to create or update Class-A surfaces to match scan data, with this specialized tool to extract feature information from scan data.



Analysis Tools

Dynamic evaluation features provide instant numerical or graphical feedback on the quality of surfaces, facilitating the fine-tuning of results.

Hybrid Modeling

Use a procedural curve-based, direct control vertex (cv) manipulation, or hybrid modeling approach that combines both techniques to create any shape. Benefit from the advantages of each approach to complete work more quickly and with greater precision.

Hybrid Geometry

Make faster design changes to a previous model, using the unique hybrid modeling technique in AliasStudio that combines NURBS surfaces and mesh data. Hybrid modeling dramatically increases productivity, giving users more time to be creative.

NEW Surface Reconstruction

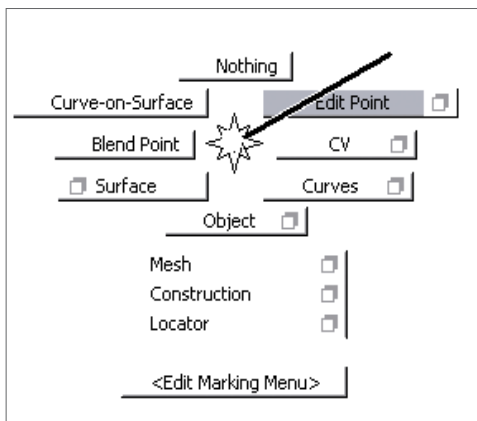
Automate the multistep process of filling holes in scan data by recognizing exterior curvature through user-defined section and generation of a mesh patch.

Productive Environment

The AliasStudio user interface (UI) helps industrial designers get up to speed quickly. The intuitive UI shortens learning time for new users and enables experienced users to work more quickly and efficiently.

Marking Menus

Quickly select commands without looking away from the design. Patented marking menus enable designers to use context-sensitive gestures to select commands.

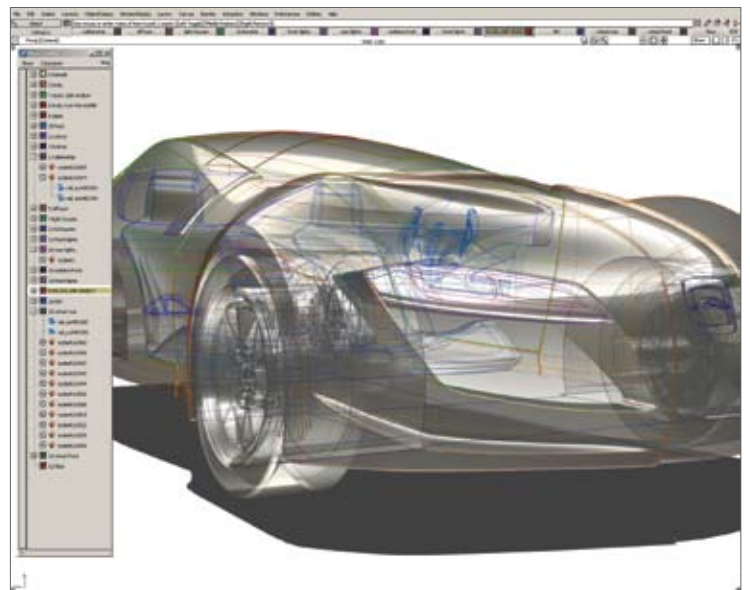


Customizable Interface

Customize the user interface—including hotkeys, tool display, and marking menus—to suit any workflow.

Data Organization

Improve workflow and performance by organizing work and making it faster to navigate through complex models. Categorize and organize model components into layers for more efficient navigation.



NEW UI Performance

Handle large data sets with the enhanced performance of picking. Fast pick performance with large data improves user productivity by eliminating selection lag.

Process Integration

Data exchange with CAD software is important at both ends of the design process. Imported engineering data can be used as references for sketching and modeling. After the design model is created and approved, digital design data can be exchanged with engineering packages to help preserve the integrity of designs at the engineering stage.



Data Exchange

This feature includes fast, high-quality CAD translators for industry-standard data formats: DES, DXF™, IGES, STEP, VDA/FS, VDA/IS, and more.

ENHANCED Data Exchange with Autodesk Manufacturing Products

Exchange data with mechanical design and engineering products from Autodesk, such as Autodesk® Inventor™ software, using the DWG™ data format. AliasStudio directly reads native Autodesk Inventor data.

DirectConnect Data Translators

Integrate AliasStudio into the development pipeline with bidirectional data exchange with leading CAD software packages such as the CATIA® V4 and V5, UGS® NX®, Pro/ENGINEER®, and Granite® and with import for SolidWorks® and JT data applications.

Model Verification

Use the Check Model tool to test geometry created in AliasStudio to avoid potential problems when transferring data to CAD systems such as CATIA, Unigraphics®, Pro/ENGINEER, and others. Tests are based on standards developed by the German Automotive Industry Association.

Autodesk AliasStudio Product Line

AliasStudio is a scalable product line with the right offering for design tasks and deliverables.

Autodesk DesignStudio

Autodesk® DesignStudio® software enables designers to rapidly develop and communicate design concepts using sketches, illustrations, photorealistic renderings, animations, and digital 3D advanced NURBS models.

Autodesk Studio

Own the entire design process—from ideation through design refinement and resolution. Autodesk® Studio software includes all the features in DesignStudio, plus the capability to efficiently control the entire shape-definition process with tools to create, modify, and visualize precise surfaces and design details. It provides a unique value with additional modeling productivity tools for faster model creation and modification, and includes advanced visualization features for realistic interactive evaluation and presentation.

Autodesk AutoStudio

Use Autodesk® AutoStudio software, an industry-leading application for automotive design and styling and the choice of major automotive styling studios throughout the world. The software includes all of the functionality in Autodesk Studio and SurfaceStudio and provides a comprehensive solution for the entire shape-definition process, from concept sketches through Class-A surfacing.

Autodesk SurfaceStudio

Evolve concept models and scan data into high-quality production surfaces, including Class-A surfaces for automotive design and styling, with Autodesk® SurfaceStudio software. It includes a full set of dynamic modeling capabilities for shape development, refinement, and control, as well as powerful interactive evaluation functionality to verify the aesthetic and technical quality of surfaces.

Task	Deliverables	DesignStudio	Studio	AutoStudio	SurfaceStudio
Creation and Communication of Design	<ul style="list-style-type: none"> • Sketches • Illustrations • Renderings • 3D concept models • Rapid prototypes • Animation 	○	○	○	
Design Refinement and Production Modeling	<ul style="list-style-type: none"> • Detailed models for transfer to CAD • Production surfaces • Advanced visualization imagery 		○	○	○
Scan Data Modeling	<ul style="list-style-type: none"> • Class-A surfaces • Modified scan data • Scan data visualizations 			○	○

