CATIA RELEASE HIGHLIGHTS-R2025X

NEW ROLES PLUS OTHER ENHANCEMENTS TO IMPROVE YOUR DESIGN, ENGINEERING, SYSTEMS AND CONSTRUCTION PROCESSES

DASSAULT SYSTEMES

What's new in CATIA R2025x

In the ever-evolving landscape of design and engineering, CATIA R2025x excels in innovation and efficiency. This e-book highlights just a few of the many transformative features and enhancements of CATIA R2025x, showcasing its unparalleled capabilities in **Design & Styling, Engineering, Systems Engineering** and advanced **Construction** solutions. CATIA R2025x is engineered to streamline processes and enhance precision.

Design & Styling

A new generation for Experience thinking

With the R2025x release, CATIA **Design & Styling** establishes itself as a leader in design innovation. By integrating sophisticated technologies focusing on user experience, R2025x empowers designers and engineers to reach new creative heights. From enhanced modeling capabilities and immersive mixed-reality experiences to sophisticated visualization tools, R2025x provides the essential resources needed to excel in today's competitive design landscape. By exploring the technical prowess of CATIA R2025x, designers can push the boundaries of what is possible, setting new standards in excellence and innovation.

Creative Designer

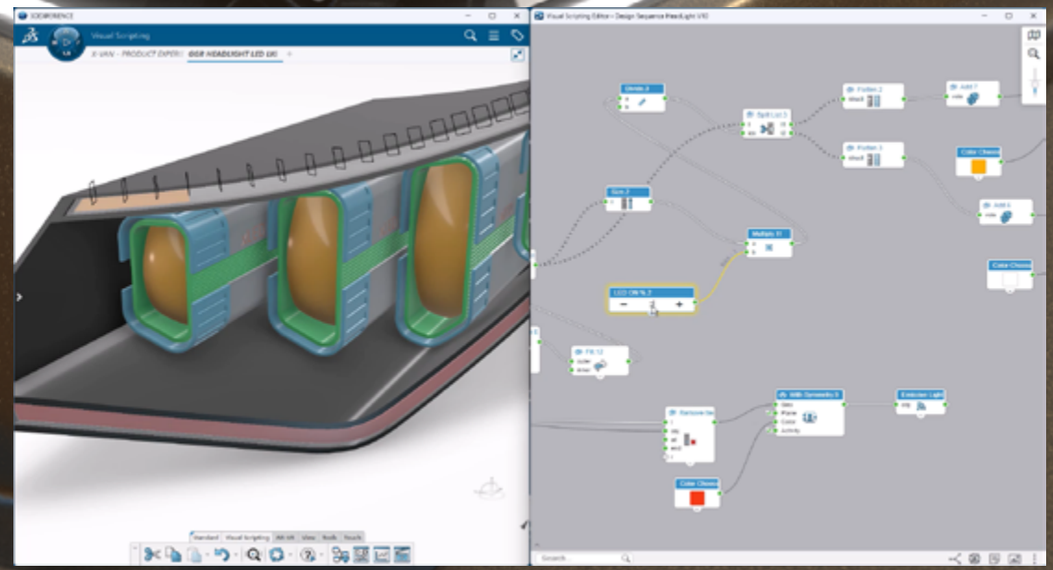
The R2025x release of CATIA **Design & Styling** is a groundbreaking advancement for designers. It introduces state-of-the-art tools for **Mixed-Reality** and enhancements that transform the design process into a more intuitive, immersive, and efficient experience.

This version is designed to address the complex demands of contemporary design challenges by integrating advanced technological features that enhance your creative journey.The sophisticated capabilities of CATIA R2025x can redefine your design potential.

Visual Script Designer

Discover the expansive possibilities of your 3D parametric models with advanced design automation with the **Visual Scripting** app Generate comprehensive video sequences to explore various design variations, gaining insights into how different parameters influence outcomes. This capability allows you to compare results, ensuring you select the optimal design solution.

Safeguard your creative processes and intellectual property through robust permission systems, which is crucial when collaborating with external organizations. This ensures your design sequences remain protected, fostering secure and efficient collaboration. Enhance your workflow with intelligent layout features and automatic region assistants, streamlining graph organization. The automatic hiding behavior of connected operators facilitates seamless graph creation, boosting productivity. Gain a deeper understanding of graph data flows with unified warnings and error notifications for operators, ensuring clarity and efficiency in your design automation tasks.



Class-A Expert Reverse Engineer

CATIA R2025x enhances design precision with advanced surface modeling and reverse engineering tools. The **ICEM Design Experience** application has been upgraded to improve surface quality, productivity, and decision-making processes. These tools offer an intuitive selection processe and enhanced visual analysis capabilities that facilitate comprehensive model comparisons and evaluations.

With the upgraded **Reverse Engineer user role**, in addition to the Mechanical Wizard reconstruction capacity, a new smart feature reconstruction function for extrusion shapes completes the semi-automated workflow for converting scan meshes into virtual models, significantly optimizing the reverse engineering process. This is particularly useful in sectors such as manufacturing, where the ability to quickly and accurately recreate models from physical components is vital.

Visual Experience Designer
Perceived Quality Engineer

A key highlight of these enhancements is the introduction of the **Validation Rendering** application in the **Perceived Quality Engineer** user-role**.** This provides physically plausible lighting simulation and a physically correct rendering pipeline, allowing for exact visual comparisons and design validations. The app validates light and lamp designs, ensuring engineers and designers make informed decisions based on realistic simulations. This capability is crucial for product design and development, providing stakeholders with a clear and detailed view of the design and ensuring every decision is made with accuracy and comprehensive data.

Visualization capabilities in R2025x have been significantly advanced to meet the demands of high-quality design presentations. The Stellar Interactive Rendering Engine provides a dynamic and accurate visualization experience essential for precise decision-making. With the new Stellar Performance Mode, designers can balance physical accuracy and performance, enabling high-precision visualization tasks without the need for global illumination.

Engineering

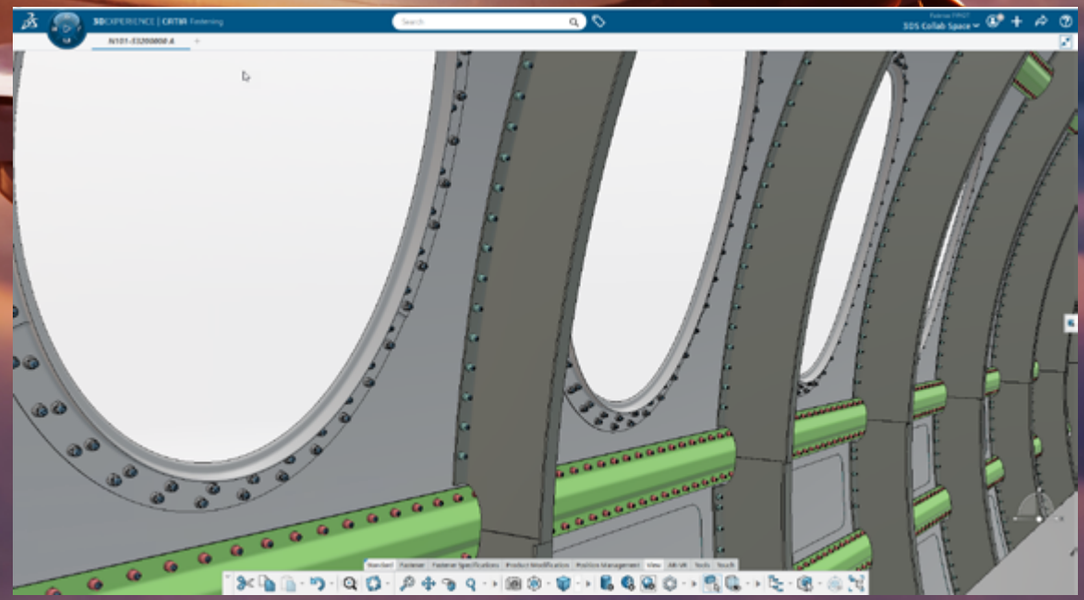
In the rapidly evolving landscape of modern industry, the need for innovative solutions that enhance efficiency and precision has never been more critical. Dassault Systemes delivers the latest advancements in engineering technology, highlighting key innovations that are setting new standards in industrial processes.

By exploring **streamlined fastener management, generative design, and increased productivity in composite manufacturing,** we aim to provide a comprehensive overview of how these developments are shaping the future of engineering.

Airframe Fastener Engineer

One of the cornerstones of engineering assembly is the effective management of fasteners. The **Airframe Fastener Engineer** role introduces a streamlined user interface to enhance fastener symmetry management. This intuitive interface simplifies the alignment process and ensures structural integrity and visual coherence across assemblies.

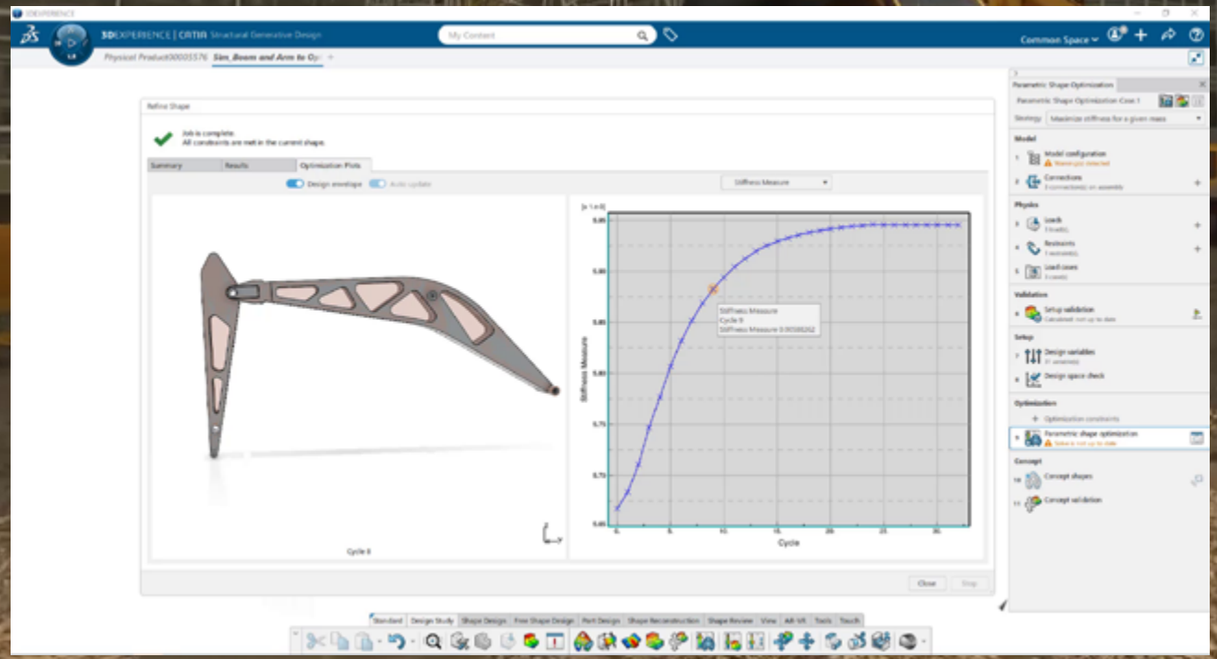
Automating symmetry checks allows engineers to divert their focus from tedious alignment tasks to more critical design elements. This shift results in enhanced efficiency and increased accuracy, significantly minimizing the risk of structural failure and ensuring robust and reliable assemblies. In addition, a cohesive appearance is achieved through meticulous symmetry, which is vital in industries where design is as important as function. The streamlined fastener management system finds applications in the automotive and aerospace industries, where precision and safety are paramount. This innovation significantly contributes to overall productivity and product quality by reducing assembly time and increasing alignment accuracy.



Structural Generative Designer

A revolutionary approach in design, the **Structural Generative Designer** User-role generative-driven design combines parametric and non-parametric optimization technologies to push the boundaries of traditional design processes. This technology optimizes parametrized CAD models, yielding superior structural performance with fewer iterations.

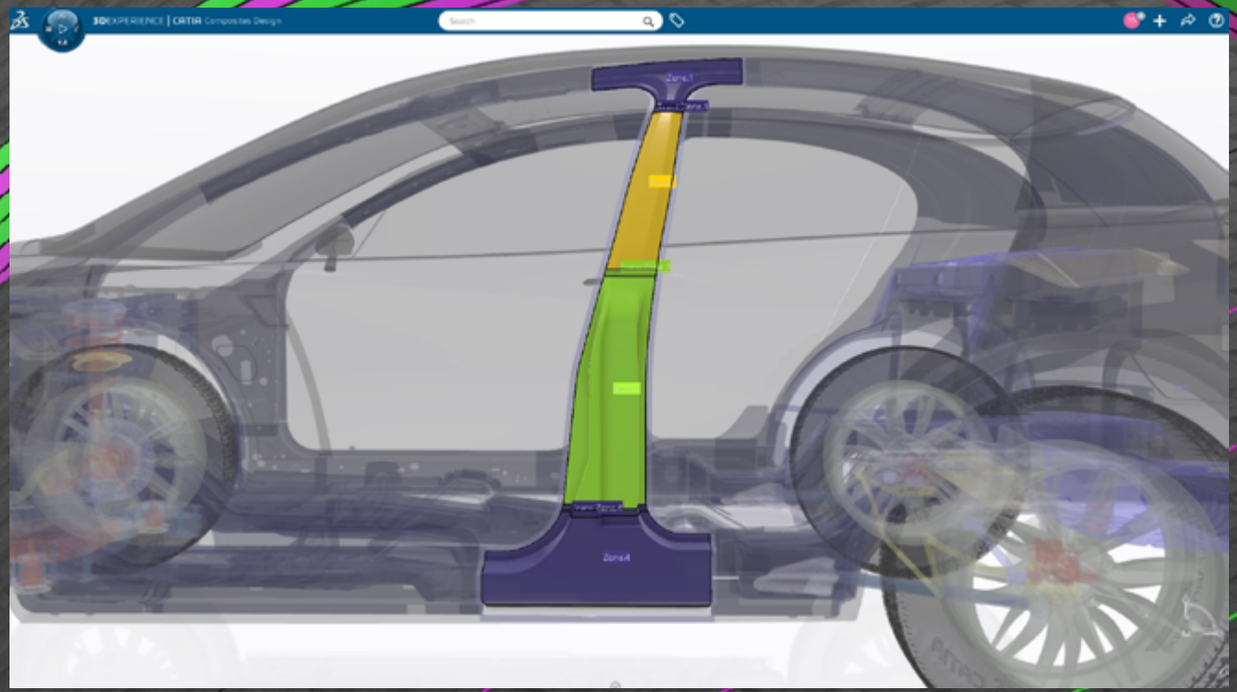
The new **Parametric shape optimization** allows for limitless CAD design parameters, enabling engineers to explore various design possibilities. This capability reduces iteration cycles, achieving optimal design solutions faster, thereby saving valuable time and resources. The result is superior design performance, enhancing the structural integrity and performance of the final product and ensuring it meets rigorous industry standards. **Generative-driven design** is particularly beneficial in industries focused on cutting-edge technology and innovation, such as robotics and consumer electronics. The ability to rapidly iterate and optimize designs allows companies to quickly bring high-performing products to market.



Composites Designer for Transportation and Mobility

The new **Composites Designer for Transportation and Mobility** role plays a crucial part in speeding up vehicle design with composite materials. By collaborating closely with other design teams and considering how these materials are manufactured, this role helps cut down the time it takes to bring a design from concept to reality. This efficiency ensures that new vehicle designs meet the high standards for today's transportation needs.

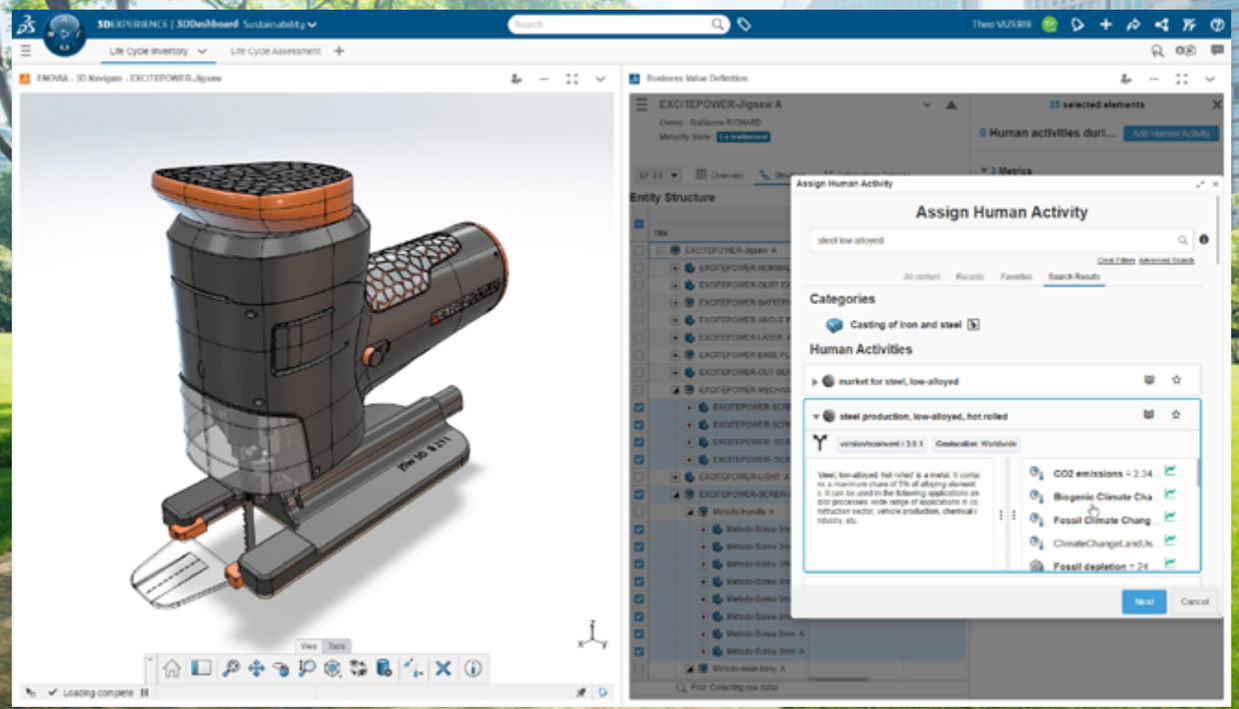
This role brings several benefits, such as better handling of materials used in designs and making sure they fit together smoothly. It also improves the accuracy of how these materials are layered, using precise calculations. Additionally, the role helps create stronger material layers automatically, which boosts the overall strength and reliability of the final products. In the transportation and mobility sectors, having someone focused on these tasks ensures the use of lighter and stronger materials, essential for better performance and cost efficiency.



Eco-Design Engineer

The new **Eco-Design Engineer** user role enhancement of producing Life Cycle Assessment (LCA) studies at scale stands as a transformative force. This enhancement provides unparalleled value by enriching the virtual twin with sustainable knowledge and materials definition know-how. It offers an accurate and live representation of a product's material composition and environmental footprint, allowing engineers to foresee and mitigate ecological impacts with precision. This real-time insight enables manufacturers to make informed, sustainable choices during the development stage, significantly reducing the environmental footprint of their products.

Furthermore, automating human activity assignments rooted in lifecycle inventory best practices elevates efficiency in the design process. By streamlining this critical aspect, engineers can focus on innovative solutions that integrate sustainability seamlessly into their workflows. This automation optimizes resource allocation and strengthens a company's commitment to environmental responsibility. Ultimately, this enhancement empowers Eco-Design Engineers to pioneer sustainable product development, fostering a future where innovation and ecological stewardship are inextricably linked.



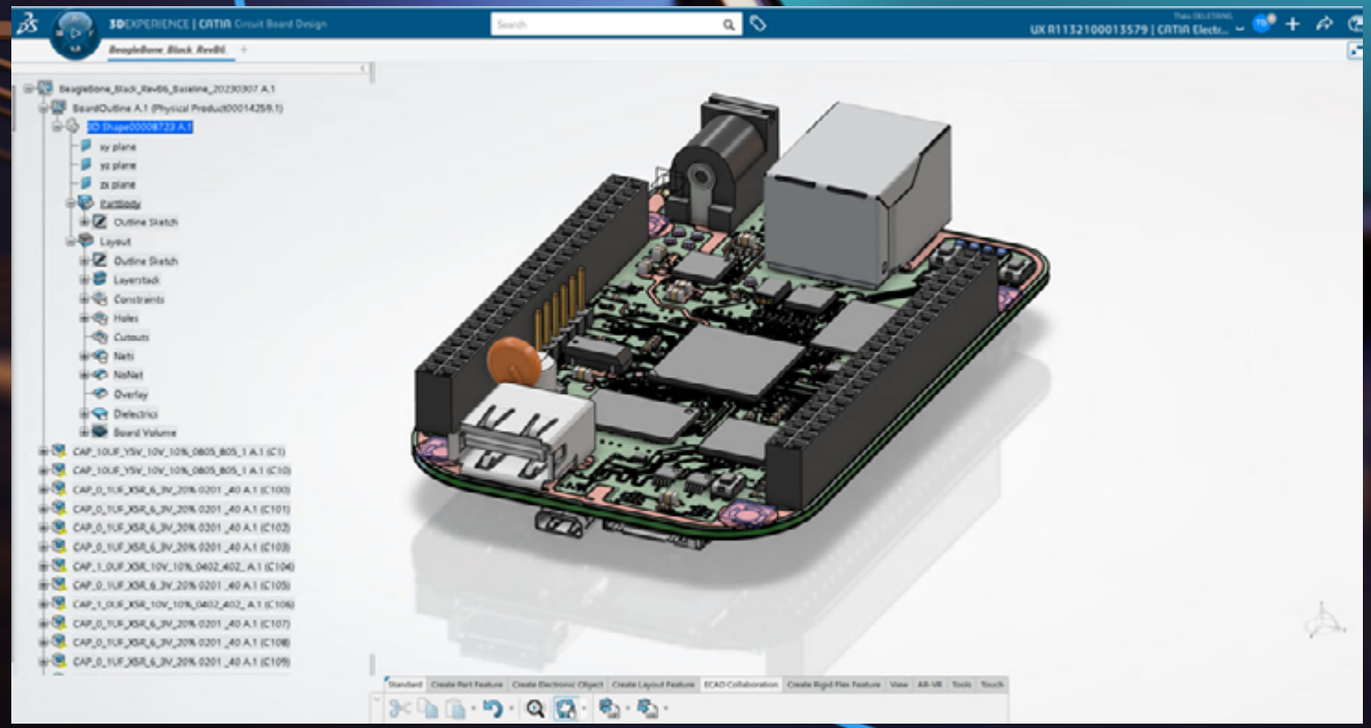
Systems Engineering

System engineering stands at the forefront of technological innovation, driving the development of intricate and precise models with remarkable accuracy and efficiency. Recent advancements, such as the introduction of **4 new Modelica system libraries,** have significantly broadened the scope of modeling possibilities, empowering engineers to push the boundaries of innovation. By **enhancing traceability in change management**, streamlining transitions from design to implementation, and integrating **advanced security analysis** tools like the MITRE ATT&CK libraries, system engineering ensures robust and secure system designs. Moreover, improvements in scalability and performance through the **3D**EXPERIENCE Platform support the efficient management of larger datasets, facilitating agile traceability processes.

These innovations collectively underscore the pivotal role of system engineering in achieving excellence across multidisciplinary engineering projects, cementing its position as a leader in fostering innovation, efficiency, and security.

Collaborative Circuit Board Designer

The **Collaborative Circuit Board Designer** is a cutting-edge new role created to enhance design by integrating both electronic and mechanical design processes. This new user role for developing Printed Circuit Boards (PCBs), facilitates collaboration between electronic and mechanical designers through support for the IDX V3 standard. Key features include comprehensive clash analysis and simulations covering thermal, structural, and electromagnetic aspects, ensuring optimal design integrity. This tool significantly boosts design efficiency and accuracy, helping industrial companies streamline their processes and drive innovation.

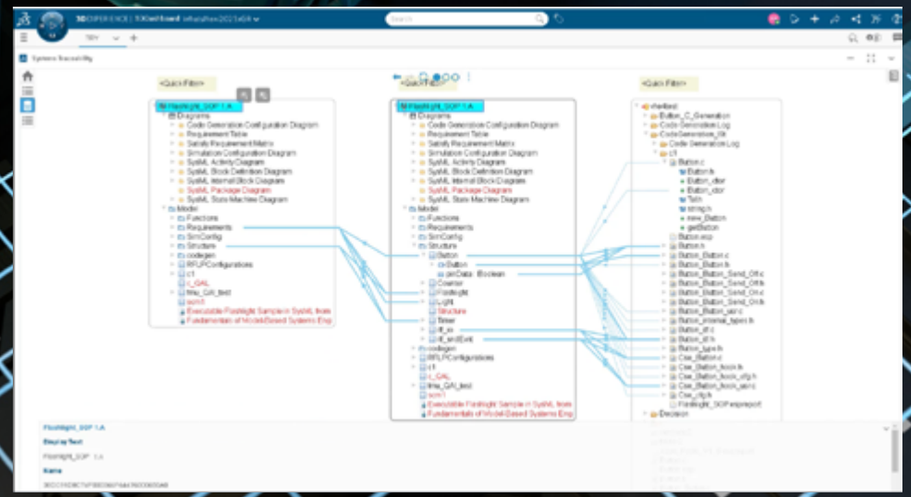


System Traceability Analyst
System Traceability Engineer

New connectors for **3D**EXPERIENCE cloud platform services significantly improve the scalability and performance of traceability analyses. This enhancement enables engineers to handle larger datasets and more complex projects more efficiently, ensuring that traceability processes are thorough and agile by leveraging the 3DEXPERIENCE cloud platform.

System Software Production Engineer

The **System Software Production Engineer** role introduces a revolutionary capability by generating executable files directly from UML system architecture models. This groundbreaking feature streamlines the transition from design to implementation, significantly reducing the time and effort required to move from conceptual design to practical application. By ensuring a smooth transition, it facilitates efficient and reliable system implementations. Automation of this process allows engineers to concentrate on optimizing design rather than manual coding tasks, accelerating project timelines and boosting productivity. This approach not only enhances efficiency but also elevates the quality of system development in today's fast-paced technological environment.

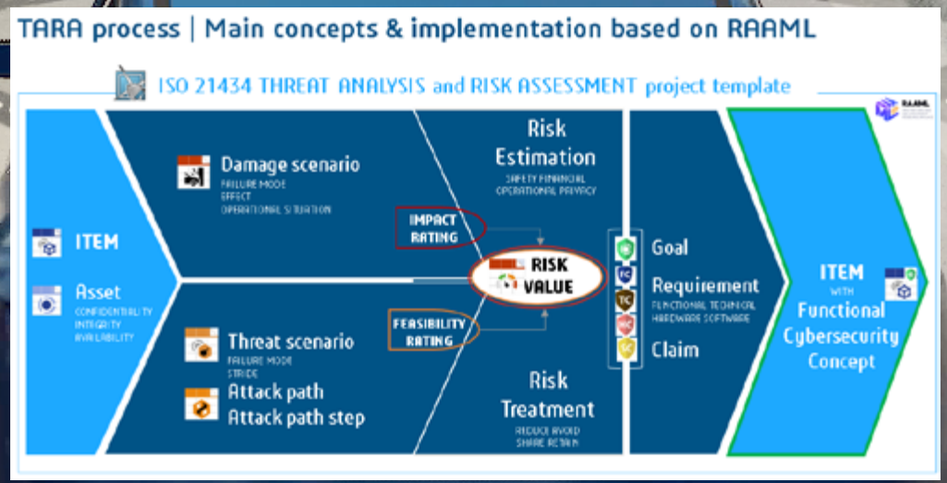


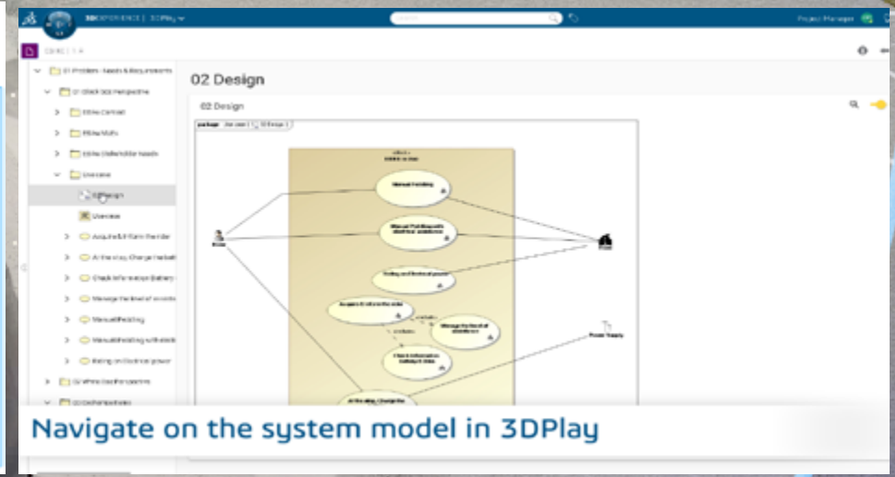
Magic Cyber Security Engineer

The **Magic Cyber Security Engineer role** revolutionizes system security analysis by integrating with the MITRE ATT&CK libraries, offering enhanced capabilities to identify and mitigate potential vulnerabilities. This integration empowers engineers to weave comprehensive security strategies into their designs, leading to the development of robust and secure systems vital in our increasingly digital and interconnected world. By embedding advanced security analysis tools, this platform ensures that systems not only meet but exceed the security demands of today's technological landscape.

Collaborative Designer for CATIA Magic

The **Collaborative Designer for CATIA Magic** role is expertly crafted to manage the multidisciplinary impacts of system design decisions with precision. It enhances traceability and collaboration in change management. It also facilitates sharing system models with all team members, ensuring that every discipline and program collaborator is informed about the intended design. This comprehensive approach ensures the certification of complex and critical products by implementing change management at the level of system model elements, effectively governing multidisciplinary developments. Additionally, it enables the generation of a software development work breakdown structure directly from the system architecture, including support for agile EPICS. This is complemented by built-in traceability from system design to software implementation and testing, streamlining the development workflow and upholding rigorous adherence to predefined standards.



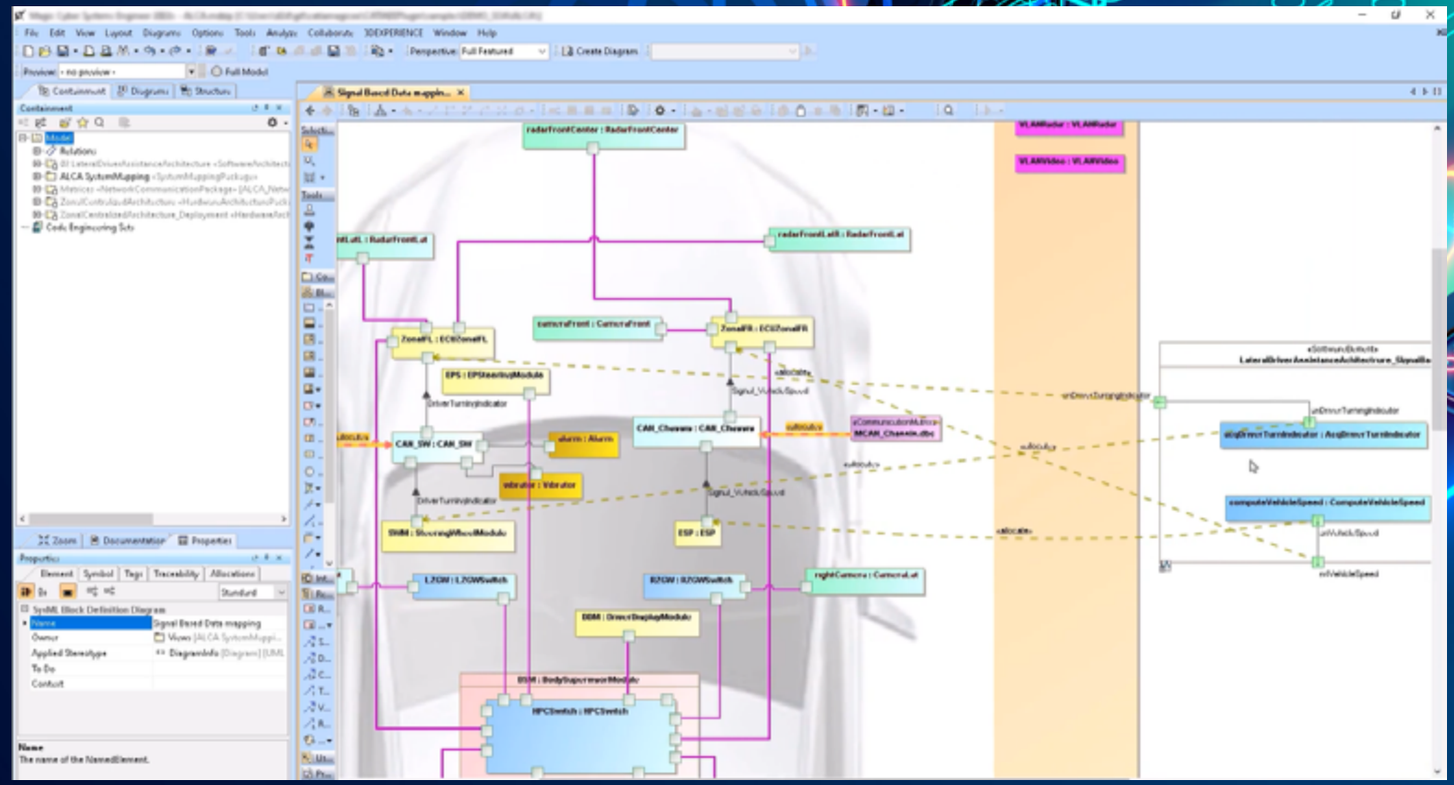


Navigate on the system model in 3DPlay

Magic Systems EE & Software Architect

Introducing the new **Magic Systems EE & Software Architect** role significantly advances hardware architecture design. This enhancement provides specialized profiles and menus, empowering engineers to define and visualize complex relationships between hardware components within a unified workbench. This role promotes the development of higher-quality and more reliable systems by offering a streamlined approach to managing hardware configurations.

This means, engineers can now visualize and accurately represent all hardware components, which significantly enhances the overall design process and minimizes the risk of errors. The simplified management of hardware components ensures smoother project workflows, leading to more efficient and accurate hardware design outcomes. This enhancement underscores our commitment to advancing engineering practices and facilitating the development of innovative, dependable hardware architectures.



Construction

CATIA R2025x stands at the forefront of innovation in the dynamic landscape of construction engineering, offering cutting-edge tools and solutions tailored for modern construction professionals. This section delves into the latest enhancements designed to streamline workflows, enhance precision, and ensure compliance with industry standards.manipulators directly into the 3D model.

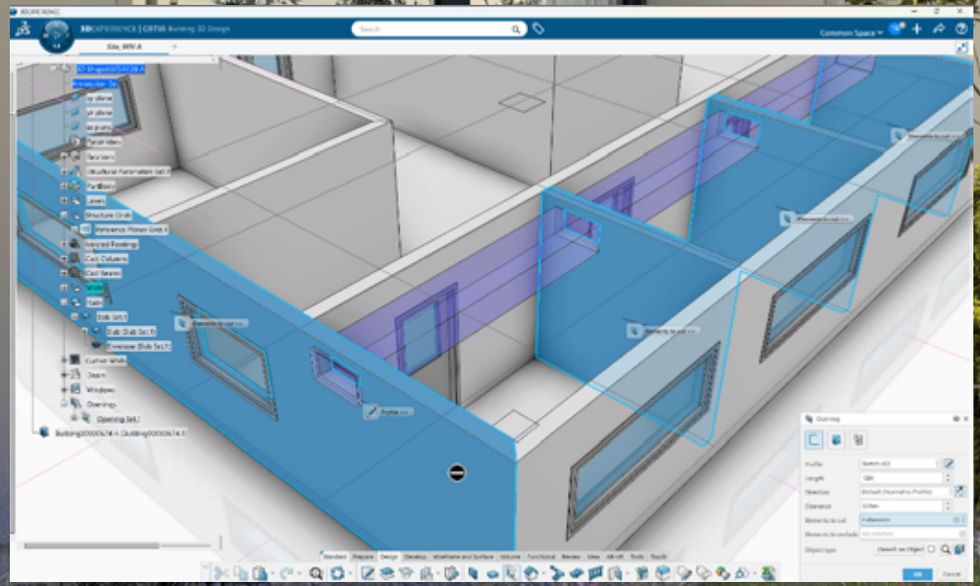
Building Design Engineer
Building Designer

The **Wall Sketcher** tool now features new constraint capabilities, This enhancement significantly improves precision and accuracy in wall designs, elevating the user experience through intuitive constraint management by reducing the time needed for wall modifications, increasing productivity, and allowing for faster project completions.

The **Enhanced Openings Creation** feature allows users to create openings through various building components, such as concrete and columns. This flexibility simplifies design modifications and enhances the accuracy of construction documentation. Integrating openings into the overall design becomes more intuitive and efficient, reducing time and effort while ensuring precise openings in structural components.

Introducing the ability to **configure custom object types** for concrete columns and beams grants greater flexibility in defining structural components. This customization ensures that all elements meet specific project requirements, enhancing the overall quality and accuracy of construction models.

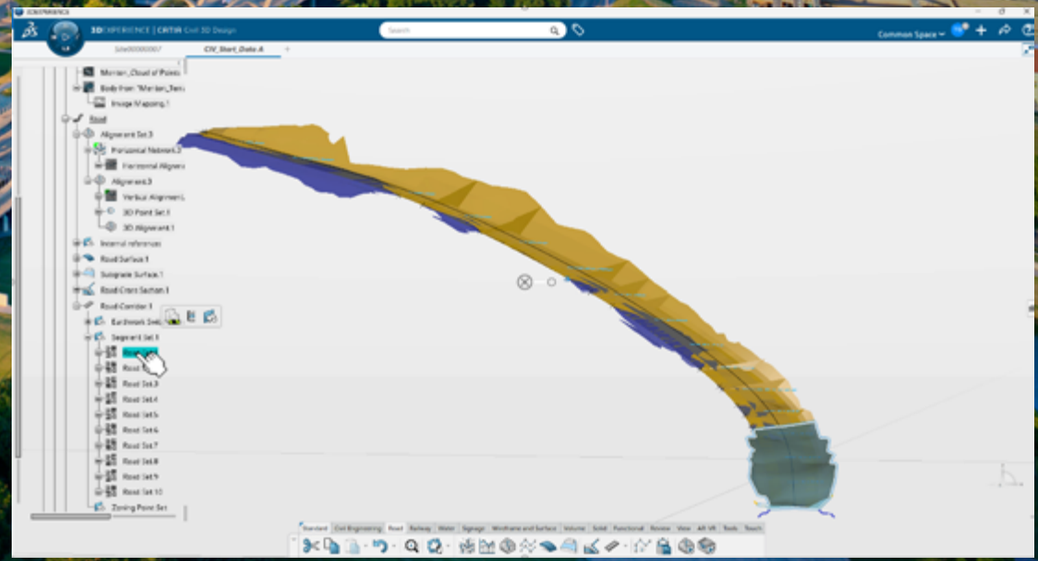
Compliance with the IFC Standard 4X3, especially for elements oriented toward road design, ensures compatibility with industry-standard data exchange formats. This facilitates collaboration and interoperability, enhancing the efficiency of cross-platform communication and data exchange. Seamless integration with other software tools and stakeholders promotes a collaborative and efficient work environment, which is vital for modern project management.



Civil Designer
Civil Engineer

Introducing state-of-the-art tools designed to revolutionize civil infrastructure projects for construction professionals. Our enhanced **corridor segmentation** feature empowers you to segment lengthy road elements into manageable sections, drastically improving efficiency in road design and project updates. By reducing the computational load, this innovation ensures your large-scale projects are handled with unprecedented speed and precision, setting new industry standards.

Complementing this, our new earthwork design workflow incorporates advanced commands for local modifications, optimizing performance during road corridor adjustments. These enhancements streamline your workflow, enabling you to deliver superior project outcomes with ease. Embrace the future of infrastructure development—where agility, accuracy, and innovation drive success.



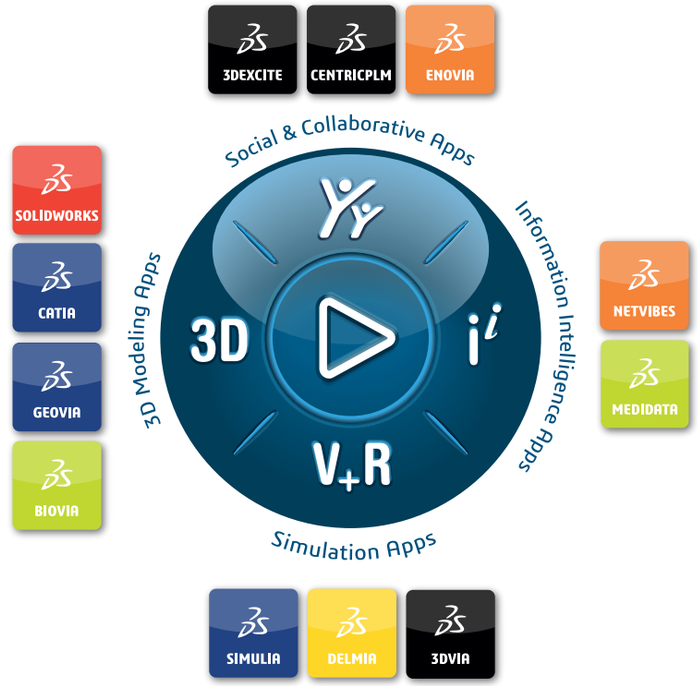
Conclusion

CATIA R2025x is a testament to relentless innovation and excellence in design and engineering. This platform's key advancements—from enhanced workflow efficiencies and precision surface modeling to comprehensive construction solutions—demonstrate its unwavering commitment to pushing the boundaries of what is possible. By continuously integrating cutting-edge technologies and methodologies, CATIA R2025x meets and exceeds various industries' demands and positions itself as a leader in driving success in complex projects. As the design and engineering landscape evolves, CATIA R2025x remains at the forefront, empowering professionals to achieve unparalleled creativity, accuracy, and productivity.

Our **3D**EXPERIENCE® platform powers our brand applications, serving 11 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the **3DEXPERIENCE** Company, is a catalyst for human progress. We provide business and people with collaborative virtual environments to imagine sustainable innovations. By creating 'virtual experience twins' of the real world with our **3DEXPERIENCE** platform and applications, our customers push the boundaries of innovation, learning and production.

Dassault Systèmes' 20,000 employees are bringing value to more than 270,000 customers of all sizes, in all industries, in more than 140 countries. For more information, visit **www.3ds.com**.



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