

## Data integrity

These features ensure that users can load OpticStudio designs directly into the CAD platform while maintaining integrity of the design. You can improve the back and forth process without losing information between optical and mechanical design.

Feature	Benefit
Load OpticStudio files	Load OpticStudio® files as native CAD parts, eliminating the time spent redesigning the geometry of the optical system. You can view all of the optical information and start designing the mechanical system right away. Includes support for the compound lens, boolean native, and grid sag.
Save OpticStudio output files	Share files from the CAD platform to OpticStudio while maintaining design fidelity. Both the optics and the mechanical design are shared without losing information.
Construction geometry	Make informed mechanical design decisions by accessing data such as clear apertures, centers of curvature, apexes, and optical axes. You get access to all of the geometry information that you need in one file.
Load ZAR files with CAD (Creo and SW parts)	Load OpticStudio files that contain Creo/SOLIDWORKS parts into either CAD program. This enables you to access the same information that was previously designed without having to worry about loss of information or having to relocate components.
Load and validate multi-configuration files	Load OpticStudio files that have multi-configurations. You can view the performance of systems at different setups to ensure all setups meet performance requirements.
Generate a report	Generate a PDF or DOCX file to easily share information with colleagues that need high-level information.

## Validation

Save time by validating your designs early in the design process. You can catch and correct errors early, make informed tradeoffs, and reduce the number of physical prototypes needed with these validation features.

Feature	Benefit
Optical Performance Summary	Easily identify how much your mechanical components are affecting the optical performance in a pass/fail format. You can make informed design tradeoffs on cost versus performance.
Critical Rays	Validate that the critical rays from the original system pass through the complete. You can view the ray paths in an output table or look at ray filters for each critical ray set.
Detector viewer	Analyze the performance of the system by looking at the rays landing on the detector. Users can have a better understanding of rays that pass through the system, helping them make more informed design decisions.
Instant ray filters	Instantly draw ray filters that help you identify which mechanical components are affecting the optical performance. You can make changes to the mechanical components early in the design process.
Ray animation	View an animation of rays going from the sources through the optomechanical path then to the detectors. This enables you to make changes to the mechanical system in the order that they arise and could reduce the changes that you have to make in the mechanical system.
Computational Domain	Exclude components for a ray trace, enabling you to analyze only specific components at a time. You can run faster ray traces without having to remove components from the assembly as well as determine the performance without specific components.
Power throughput	View the power lost to optical and mechanical components, enabling you to identify whether changes need to be done to mechanical design or optical design.
Surface power	View the power incident on any mechanical surface. You can view how much power is striking a specific component to determine if the object is causing too much energy loss.

## Manufacturing

Prepare for the next step in the design process, manufacturing. Simulate real-world impacts before getting to the production line with these features to improve the manufacturing process.

Feature	Benefit
Apply scatter profiles	Get an accurate representation of the reflective properties of the mechanical components. Get ray trace results that more accurately represent a real-world model (physical prototype).
Add mechanical edge	Add material around a lens to use as mounting edge. You can easily add the edge within the CAD platform which you can use to mount your optics better.
Generate lens drawings	Create ISO 10110 drawings for aspheric and standard lenses. Drawings automatically populate with ISO 10110 standard to ensure they are ready for manufacturing.
Tolerance information	Access optical tolerance data, including parameter and positional information, that were defined in the OpticStudio file to make informed design decisions.

## Iterate quicker

These features enable users to repond to design changes quicker. Users can reduce the back and forth process required when the optical design changes, and when adding fold mirrors or custom and catalog components.

Feature	Benefit
Update OpticStudio file	In an assembly with both optics and mechanics, you can wipe out the optics and replace them with the new ones when there are changes to the optical design. Updating the system helps you understand what changes need to be made in the mechanical design when there are changes to the optical design.
Fold mirror tool	Enables mechanical engineers to add a fold mirror in an existing optical train to accommodate space requirements. Adding a fold mirror within the CAD platform means you don't have to go back and forth between optical and mechanical design to define the position of fold mirrors.
Add custom component	Add custom optical components to simulate and suggest changes in the optical design for faster iterations
Add catalog component	Add off-the-shelf optical components in a CAD platform for faster component placement and iterations

Please refer to the [list of Supported Components](#) in LensMechanix.