

# Adams Modeler

Reimagining mechanical system simulation

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Adams Modeler transforms the Adams user experience and is now available for download. With Adams Modeler, engineers can significantly cut the time it takes to validate system performance. These efficiencies enable engineers to compress modelling timelines and accelerate product development. Built on the MSC Apex platform and powered by the Gold-Standard Adams solver, this new user experience simplifies core mechanism modelling tasks and makes the benefits of utilising Adams more accessible. There are significant improvements to modelling workflows in Adams Modeler by up to 20 fold in workflow productivity improvements.



## Improved interaction with CAD data

Adams Modeler transforms how the MBD users interact with CAD data and makes the associated workflows more efficient than Adams View. Working with large and complex assemblies is seamless. For example, consolidating CAD assembly parts into a set that facilitated MBD model creation is a frequent and typically time-consuming task. Central to the Adams Modeler interface is a direct modelling paradigm. This enables users to make quick modifications to the CAD geometry.

The interface provides more tools for editing imported geometry compared to the Adams View interface. For example, feature picking and editing, pushing/pulling faces, changing hole diameters, feature removal, and re-locating bodies are more convenient and intuitive tasks. Using these tools, users can change the imported geometry and accomplish minor modifications from within the Adams Modeler interface. Users can manage and organise the CAD data in a manner that facilitates MBD model creation.

Adams Modeler also provides several convenient tools for managing the visualisation of imported CAD. This is especially useful for large models with several layers of hierarchy. The model browser has columns with visual cues and controls for setting visibility, colour, and rendering of model objects.

## Improved model building efficiencies

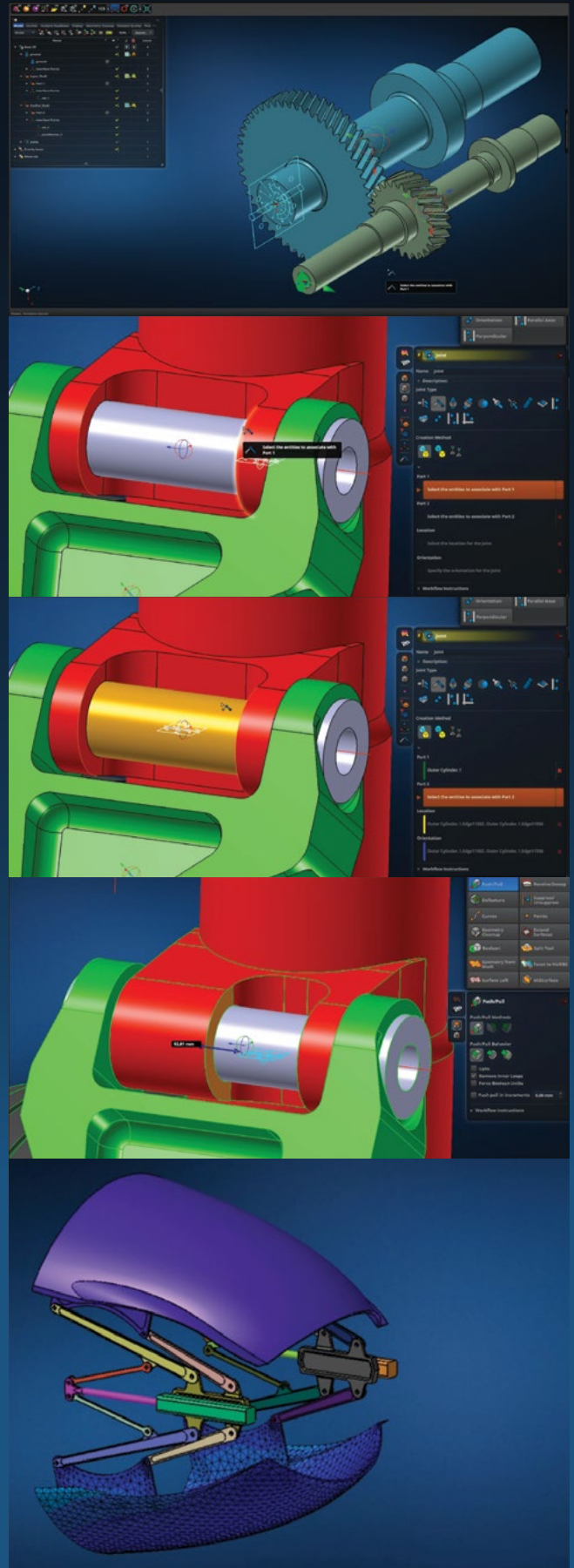
Model building for large and complex mechanisms has traditionally been a time intensive task. Adams Modeler delivers an environment that tackles this challenge. It is founded on the principle of minimising picks and clicks to create models and defining associative relationships at geometry level.

For example, Adams modelling objects such as constraints and forces can be defined with geometry that incorporates intelligent selections (accelerators) to reduce the selections needed to define the objects fully. One can locate a joint in the middle of a cylindrical hole between two parts through a guided workflow where the first click on the cylindrical face defines the first part, the location, and orientation. The next click defines the second part. If the geometry the joint is associated with is modified, the joint automatically updates to the new hole centre.

The ability to associate CAD and model objects and regenerate model objects when the underlying CAD changes fundamentally improves the efficiencies of model-building workflows.

Adams Modeler also allows the user to maintain both rigid and flex representations of a part and toggle between them within a model setup. This allows the user to switch between model fidelities at the part level conveniently.

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## Improved flex body workflows

Adams Modeler also improves flex body workflows for MBD modelling. While classic Adams View had the ViewFlex capability for generating MNF-based flexible bodies without leaving the Adams environment, the capability in the Adams Modeler interface offers several improvements.

The meshing and MNF generation processes in the Adams Modeler are streamlined to handle a broader diversity of geometry configurations and visualisation performance. Adams modelling objects like constraints and forces automatically create connections to the geometry and associated mesh. This offers the added benefit of maintaining the geometric relationships with those features and alleviates the redefinition of attachment nodes, and especially their set of dependent nodes. Suppose a part's constraints and forces were all defined using geometric association; the MNF based flexible representation of the part is seamless.

The generative geometric relationships described earlier also provide a considerable benefit to natively generated flexible parts. Any changes that would alter the flexible body's modal content will trigger a regeneration of the flexible part rep. For example, adding a hole or thinning a section via direct modeling will update the mesh and then flag the flex body as out of date. One can define the preference for whether that situation will trigger the native flex body to be recalculated automatically or be manually updated.

To facilitate durability investigations, a single window workflow for stress recovery is now available. Adams Modeler supports the ability to recover FEA stresses based upon the loads from an Adams MBD scenario without the need to leave the Adams Modeler interface to do this. After an Adams MBD scenario has been run against a model with a native flexible part rep, the Review – Recover FEA Stress tool can be used to specify the portions of the Adams MBD scenario for which MSC Nastran static stress jobs should be executed. Within the Adams Modeler post-processor, the component can then be examined by itself and the MSC Nastran stress results explored.

Adams Modeler unlocks benefits that will significantly impact your mechanism simulations through more efficient workflows for CAD data, model building, and incorporation of flexible bodies.



To learn more visit:  
[hexagonmi.com/adams-modeler](https://hexagonmi.com/adams-modeler)