

PTC's Creo 8: The Way It Should Be

The Next Evolution

CIMdata Commentary

Key takeaways:

- *Creo 8 introduces an optional design item folder to document the design's model structure independent of the feature history.*
- *Creo's GD&T Advisor has been enhanced to support assemblies.*
- *For additive manufacturing, Creo 8 introduces the concept of simulation-driven lattices.*

On April 15, 2021 PTC released the next revision of their flagship product, Creo 8. This release shows PTC's continued investment in emerging technologies. It contains a wide range of enhancements across a variety of design and manufacturing areas, including usability and productivity enhancements, model-based definition and detailing, generative design and simulation, and additive and subtractive manufacturing. Creo 8 supports PTC's stated goal to make the design engineer more efficient and productive. CIMdata is pleased to see their expanded capabilities in model-based definition as it will help companies in their journey toward digital transformation.¹

Usability and Productivity

Creo 8 provides users with easier access to commands. Feature commands inside dashboards and option panels are easier to understand and users can easily customize the layout of the interface to fit their preferences. In addition, Creo 8 improves the display of datum planes by introducing the notion of a shaded datum plane to help ground the plane's location in 3D space as shown in Figure 1.

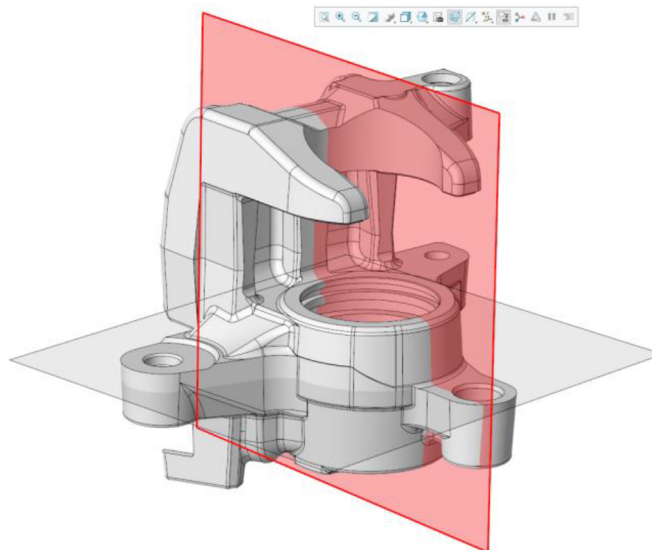


Figure 1—Display of Shaded Datum Plane in Creo 8
(Courtesy of PTC)

When the user is working with a complex model built from many surfaces, it is often difficult to organize and understand the model tree. To help address this issue, Creo 8 introduces an

¹ Research for this commentary was partially supported by PTC.

optional *design item folder* to document the design's model structure independent of the feature history. The user can search both the feature history tree and the design items tree, both of which are shown in Figure 2. Custom groups can be defined to organize design elements and building blocks. This new capability should limit the current practice of trying to manipulate and rename entries in the history tree to accomplish required changes. CIMdata is looking forward to seeing how users exploit this new capability.

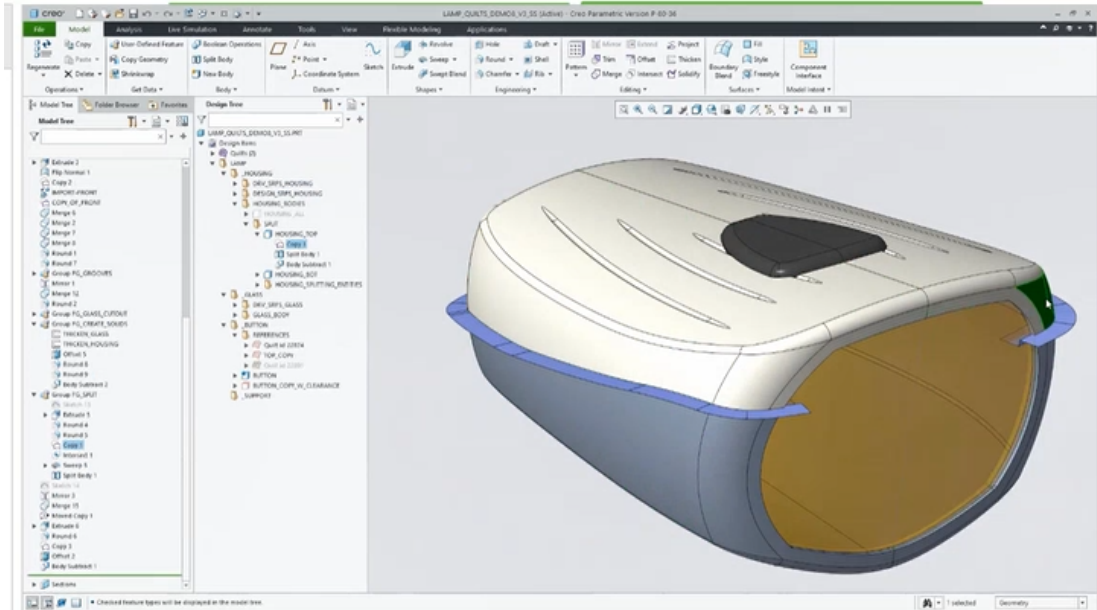


Figure 2—Display of Model Showing History Tree and Design Items Tree
(Courtesy of PTC)

The Creo 8 release also introduces a new Snapshot command to help users visualize and understand their model at any point in the history tree without the need to roll back the model.

Building on the multi-body support first launched in Creo 7, Creo 8 introduces the concept of inseparable assemblies. This new capability allows users to embed parts directly into an assembly allowing users to more easily manage bought-in components as a single object.

Model-Based Definition and Detailing

PTC continues to invest in model-based definition to strategically assist their users in efforts to move to 3D model-based design approaches.

GD&T Advisor, first appearing in Creo 4, is enhanced to support assemblies in Creo 8. PTC notes that this improvement was one of the most asked for enhancements from their customer base.

In Creo 8, PTC has developed extensive improvements to GD&T symbols with changes to placement and editing (Figure 3). The software provides easy access to symbol libraries and allows them to be customized. More importantly, Creo 8 provides semantic definition for symbols adding to 3D model intelligence. If the user exports this symbol information out to a neutral data format such as ISO STEP, the information is machine readable and correctly reflects the symbol and its geometric references. CIMdata appreciates this focus on semantic intelligence in the model.

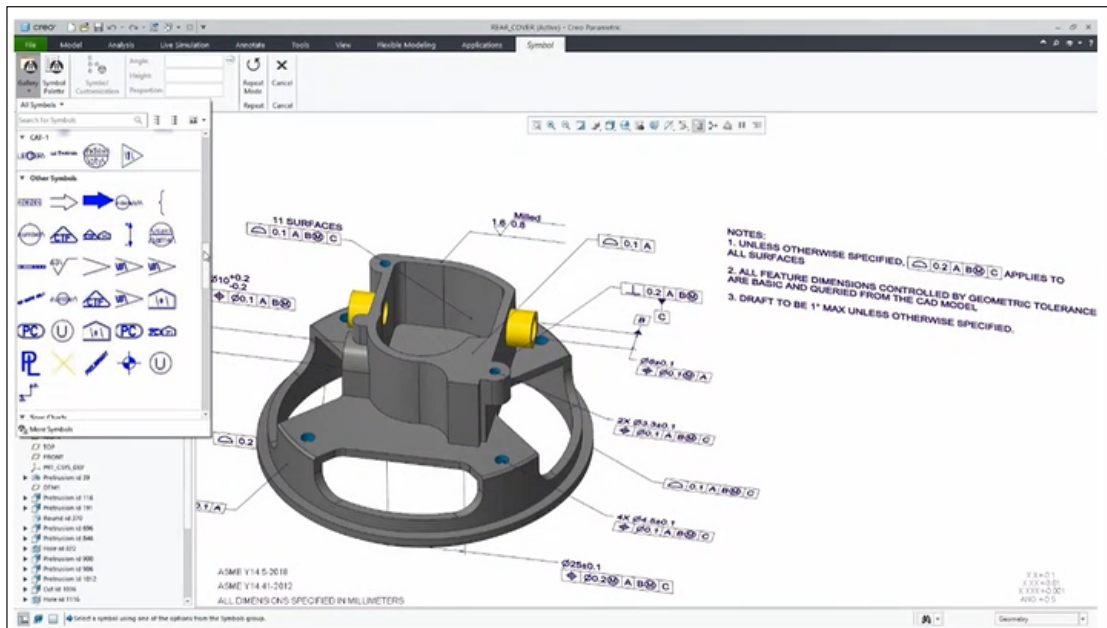


Figure 3—Creo 8 Symbol Modernization
(Courtesy of PTC)

Generative Design and Simulation

PTC continues their work on incorporating emerging technologies in Creo 8. The release simplifies the setup procedure for generative design. The actual design optimization now runs asynchronously so that the user can perform other operations at the same time.

In additive manufacturing, Creo 8 introduces the concept of simulation-driven lattices. Users can leverage results for simulation as an input to drive variable density lattices. Denser lattices are placed in high stress areas of the model and reduced density elsewhere.



Figure 4—Simulation-Driven Variable-Density Lattices
(Courtesy of PTC)

CIMdata believes PTC's continued enhancements to Creo balance pragmatic improvements in everyday design operations with innovative solutions built on emerging new technologies. This combination has kept Creo at the forefront of CAD modeling.

About CIMdata

CIMdata, an independent worldwide firm, provides strategic management consulting to maximize an enterprise's ability to design, deliver, and support innovative products and services through the identification and implementation of appropriate digital initiatives. Since its founding over thirty-five years ago, CIMdata has delivered world-class knowledge, expertise, and best-practice methods on a broad set of product lifecycle management (PLM) solutions and the digital transformation they enable. CIMdata also offers research, subscription services, publications, and education through certificate programs and international conferences. To learn more about CIMdata's services, visit our website at <http://www.CIMdata.com> or contact CIMdata at: 3909 Research Park Drive, Ann Arbor, MI 48108, USA. Tel: +1 734.668.9922. Fax: +1 734.668.1957; or at Oogststraat 20, 6004 CV Weert, The Netherlands. Tel: +31 (0) 495.533.666.