

# Product Lifecycle Management (PLM) Software Testing with Keysight Eggplant Test

Optimizing PLM performance for accuracy, consistency,  
and performance.

# The Challenges of Product Lifecycle Management (PLM) Testing

PLM systems are pivotal for design and manufacturing industries, enabling the creation and delivery of innovative products in a global market. They streamline operations by providing timely and accurate information, aiding production, planning, control, and revenue strategies. However, capitalizing on these advantages hinges on proper installation, configuration, and integration. Any deployment errors can severely hamper business operations.

There are three important aspects to consider when testing a PLM system:

## Ensuring accuracy throughout the PLM landscape

Accurate execution of PLM system configurations and custom business logic is essential for seamless operations. From simple rules to intricate customizations, consistency is key across all components to ensure data integrity and reliability. Integration with third-party systems must also be precise to maintain uniformity and prevent disruptions in the broader ecosystem.

## Guaranteeing consistency during changes and upgrades

Changes to PLM logic or supporting systems can introduce risks, potentially leading to data inaccuracies and operational challenges. As systems undergo updates and upgrades, ensuring uniformity becomes paramount. Thorough validation, including regression testing, is crucial post-changes to mitigate any adverse impacts before deployment.

## Maintaining performance and availability for optimal usability

Optimal performance and availability are vital for maximizing PLM usability, especially with a large user base. Unavailability or slow system response can hinder productivity and frustrate users. Proactive monitoring is necessary to detect performance regressions and availability issues, ensuring uninterrupted system functionality and user satisfaction.

# How Do You Solve These Challenges?

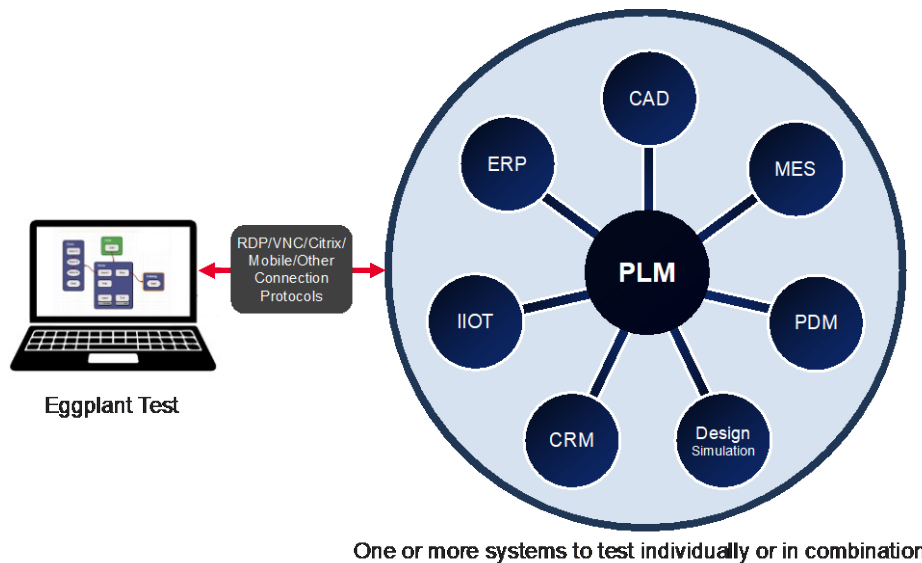
Today, addressing these challenges in PLM systems requires a shift towards automation. With their intricate mix of applications operating in diverse environments, PLM platforms demand rigorous testing to ensure software quality. However, the prevalent reliance on manual testing incurs significant costs, complexity, and delays, limiting test coverage and impeding continuous updates. Embracing automation is vital to expedite production releases and enhance agility.

Transitioning from manual testing to automation requires careful consideration of the unique requirements of CAD, PLM, and MES applications, and their supporting systems like ERP and CRM. Ultimately, the focus must be on driving value for the business while streamlining testing processes.

## Eggplant Test Solves These Challenges

Testing PLM processes in design and manufacturing industries is challenging due to the graphical nature of design applications and the complexity and breadth of the other systems involved. Eggplant Test facilitates end-to-end testing across various systems using computer vision to mimic a real user's perspective. Its key features include:

- Automation and visual verification without manual intervention, regardless of visual complexity (e.g., interacting with sliders, pop-ups, or counting holes on a bracket) including 2D and 3D interfaces.
- The ability to automate and test any platform or technology, including web, mobile, native apps, custom apps, PDF documents, IIoT, and ARKit.

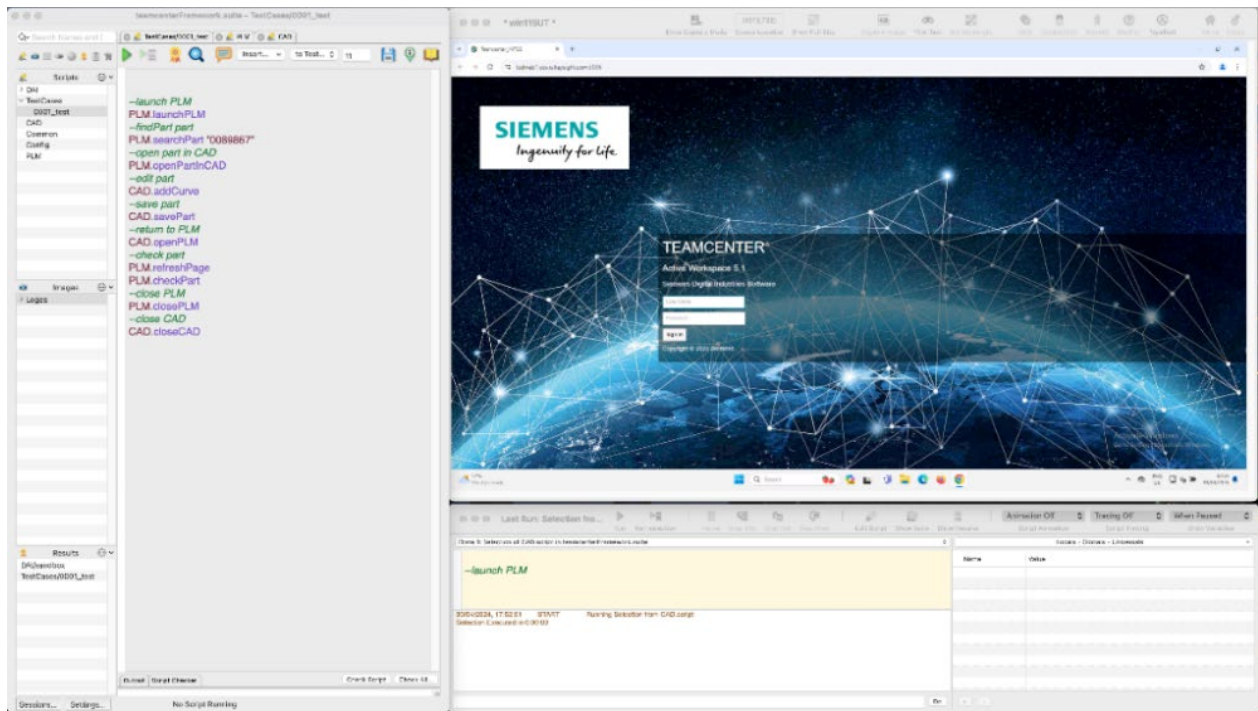


**Figure 1.** Eggplant Test, driving end-to-end tests of PLM processes starting and ending with any system.

Eggplant Test automates and validates the user interface without connecting to the object (or API) layer, eliminating the need to study the application's code structure. Tests are designed to mirror how users interact with the applications directly.

# How Eggplant Test Ensures Accuracy Throughout the PLM Landscape

Computer-aided design (CAD) software serves as a virtual replica of physical products, allowing designers to create, modify, and interact with designs digitally. Eggplant Test simplifies automated testing of design manipulation by employing intuitive commands that mimic user interactions, eliminating the need for navigating complex underlying UI structures. Its image and text recognition capabilities facilitate verification of design changes, ensuring accuracy without manual intervention.



**Figure 2.** Eggplant Test connected to a desktop ready to start a test.

Eggplant Test's seamless integration with various systems is facilitated through a straightforward "connect" command, enabling the execution of commands on target systems effortlessly. Its low-code, natural language-like interface simplifies testing procedures, catering to users with or without programming expertise. The ability to swiftly switch between systems in a single test facilitates true end-to-end testing, empowering users to compare data items across different platforms effortlessly.

Scripts in Eggplant Test enable manipulation of CAD controls, offering a user-friendly approach to creating and executing test scripts. Its extensive command set allows for interactions with complex CAD interfaces, including selecting items, modifying properties, and adding new elements to designs.

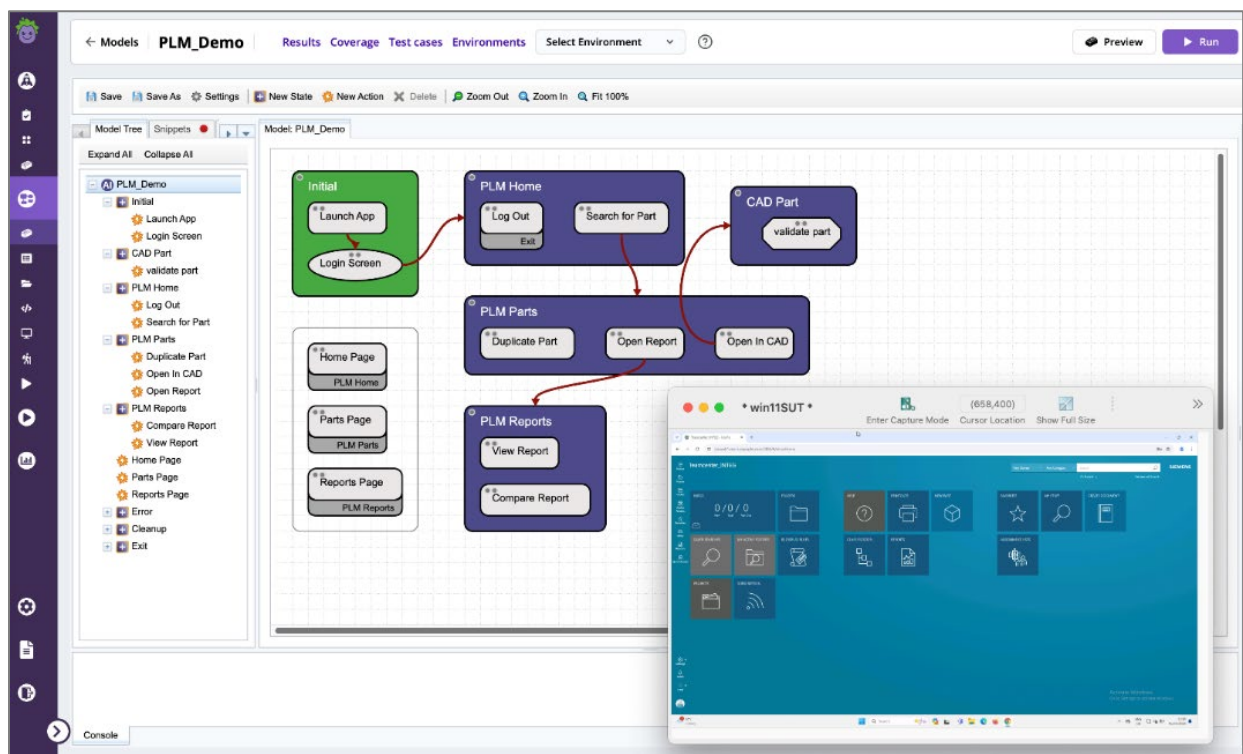
Beyond CAD systems, Eggplant Test extends its validation capabilities to ancillary elements critical to PLM ecosystems, such as PDF documents, spreadsheets, and database entries. By analyzing and validating the content of these documents, Eggplant Test ensures data consistency across various digital systems, enhancing overall system reliability and accuracy.

# How Eggplant Test Guarantees Consistency During Changes and Upgrades

Maintaining stability amidst inevitable changes poses challenges, particularly with cloud/SaaS systems and frequent updates. Functional upgrades, like system version updates, further complicate deployments, necessitating a solution for re-testing and adapting assets.

A practical solution involves leveraging automated testing to run core tests covering critical PLM use cases, supplemented by regression packs. Eggplant Test's robust capabilities allow for seamless execution across multiple systems, eliminating manual testing gaps and interactivity issues.

Eggplant Test supports graphical digital twin testing, allowing for intuitive test design and execution. This approach defines states, actions, and snippets to model various system scenarios accurately.



**Figure 3.** Eggplant Test running snippets to test workflows in the model of a PLM system, with the PLM system itself shown in the foreground (lower right).

Updating test assets post-installation or updates is simplified with Eggplant Test's UI-focused approach and powerful Computer Vision technology. UI changes are seamlessly accommodated, while image sets and intelligent healing capabilities ensure adaptability to drastic UI alterations.

## How Eggplant Test Maintains Performance and Availability for Optimal Usability

Functional testing ensures correct deployment and integration of PLM systems, but system availability and performance become critical post-deployment. While basic monitoring checks system responsiveness, it fails to address user needs adequately. Users require non-functional aspects like model loading times and data transfer efficiency to be optimized.

Eggplant Test addresses these user-centric needs by enabling:

- Definition of expected user outcomes, such as full model visibility, and capturing detailed timing data.
- Comparison of performance against baselines or thresholds, with options for alerts or data integration into operational dashboards.

This comprehensive approach allows for accurate performance monitoring and reporting, ensuring optimal functionality of CAD, PLM, and MES applications.

## Reducing PLM Friction and Risk with Eggplant Test

Eggplant Test provides a future-proofed platform that continues to work while the systems under test evolve. This normally involves changes to the underpinning of an application, but also the whole experience; Eggplant Test provides assurance, regardless of what the future holds.

The best way to see how the Eggplant PLM solution can help your organization enhance testing efficiency is to [book a demo](#).

For more information on Keysight Eggplant products and solutions, please [contact us](#).