

Automated PLM Testing with Keysight Eggplant

PLM benefits every department involved in a product's lifecycle by delivering the right information at the right time. However, these advantages are only realized if the PLM system is properly installed, configured, and integrated. Errors in deployment and configuration can severely impact the entire business.

Testing PLM systems is complex due to integration with modules like CAD, MES, and ERP, requiring comprehensive validation. Keysight Eggplant provides a scalable, flexible solution for these needs.

Eggplant ensures accuracy, consistency, and performance in PLM systems through intuitive automated testing, comprehensive integration, and robust validation.



Software Stack



Eggplant integrates with CI/CD tools (e.g., Jenkins, GitLab), test management tools (e.g., Jira, TestRail), and development environments (e.g., Visual Studio, Eclipse), supporting comprehensive end-to-end workflows.

Keysight Eggplant features include

- **DAI Test Controller**
Manages and executes test scripts.
- **Eggplant Studio**
Simulates user interactions across devices.
- **DAI Repository**
Stores and analyzes test results.

How to achieve accuracy in your PLM landscape

Eggplant Test simplifies automated testing of design manipulation by using intuitive commands that interact with controls as a user would, eliminating the need for complex UI navigation. It verifies design changes using image and text recognition, leveraging computer vision to mimic a user's perspective and provide visual verification without manual intervention.

```
// Connect to a remote desktop and wait until we see the start menu icon before continuing  
  
connect "Remote_PLM_System"  
  
waitfor 4, "start_menu"
```

Figure 4. Eggplant Test script for connecting to a system under test and then waiting for the start menu to appear. In this example if the start menu takes more than 4 seconds to appear we will fail the test. This allows us to ensure we do not wait indefinitely for something to happen.

The “connect” command allows seamless switching between systems in a single test, enabling easy comparison or data transfer. For example, connecting to both PLM and CAD systems to compare temperature thresholds involves reading and comparing values visually displayed on each system. Eggplant Test scripts can simulate user manipulation of CAD controls. Commands such as “click” and “drag” manipulate product designs on a digital canvas, interacting with complex layers of popovers, pop-ups, and sidebars. The scripting language also supports mobile device gestures like “swipe.”

Eggplant Test scripts verify changes by visually detecting and confirming design alterations, such as deleting a slot in a design and verifying its removal. Scripts can perform bulk actions, like deleting all slots using the “EveryImageLocation” command to find and iterate through all instances of an element. Eggplant Test can validate content within ancillary digital business systems, such as PDF documents, Word files, spreadsheets, and databases, ensuring consistency and correctness across digital systems.

Ensuring system functionality during updates and changes is crucial. Eggplant Test reuses test assets from initial deployments to verify system consistency. Automated tests, such as “smoke tests” and “regression packs,” cover critical use cases and specific areas, ensuring comprehensive coverage across multiple systems. Eggplant Test supports graphical digital twin modeling for test design, allowing quick definition of all possible test conditions using state-chart-like notation. This consistent execution technology offers robust testing, validation, and automation for PLM systems.

Beyond functional testing, Eggplant Test ensures optimal performance and availability of PLM systems by accurately recording and analyzing performance metrics from a user’s perspective. This includes timing data for model loads, data transfers, and page refreshes, ensuring systems meet user demands for responsiveness and reliability.

Key Points

- 1 Simulating User Interactions with CAD Software**
Simplifies design manipulation verification using intuitive commands.
- 2 Connecting and Executing Commands on Multiple Systems**
Enables seamless integration and end-to-end testing.
- 3 Verifying Design Changes through Image and Text Recognition**
Uses computer vision for visual verification.
- 4 Validating Data Across Digital Business Systems**
Ensures consistency and correctness in digital content.

Conclusion

Eggplant Test provides a future-proof platform that continues to work while the systems under test evolve. This includes changes to the underpinning of an application, such as a major version upgrade, and the whole experience, such as moving from a 2D desktop application to a 3D Virtual Reality headset. Eggplant Test provides assurance, regardless of what the future holds.