



Automation Intelligence for Any EMR

eBook

 KEYSIGHT



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CHAPTER 1

The Age of Digital Healthcare



The Age of Digital Healthcare

Today's healthcare organizations need a new approach to ensure that electronic medical records (EMR) work properly and integrate seamlessly with other hospital systems. Traditional manual software testing methods simply cannot cover this vast scope, giving rise to a new approach: intelligent, automated testing.

EMR's are getting more customized, more interfaced and are on quicker upgrade cycles, leading to what Fortune Magazine documents as the growing patient safety risk "tied to software glitches, user errors, or other flaws" [1].

How a patient flows through the system, their treatment plans, orders and medications are complex and unique, creating a complex mesh of possible scenarios, often far too many for even an army of manual testers to cover.

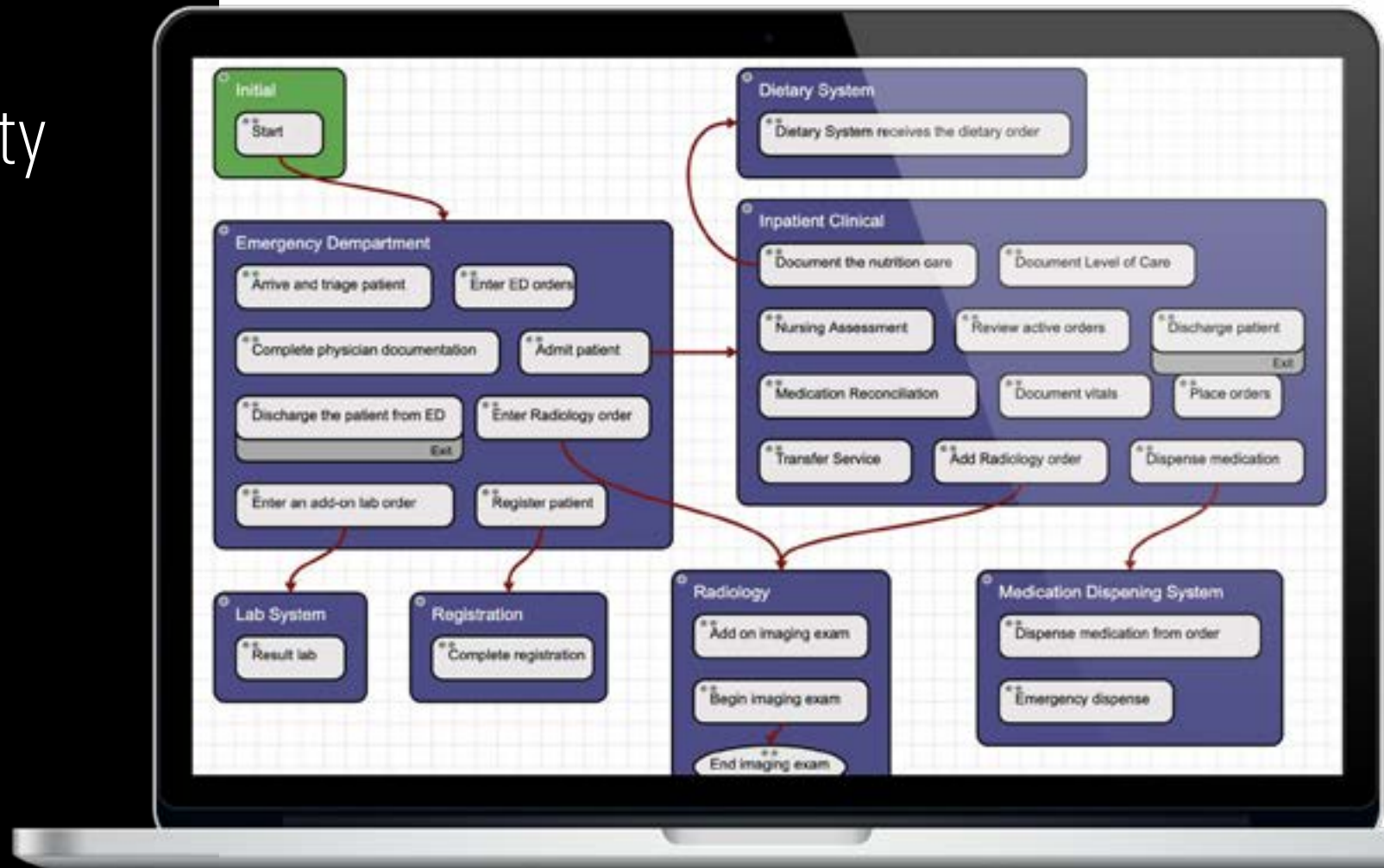
Keysight Eggplant Test and Automation Intelligence simplifies testing to ensure your EMR platforms are always performing properly. Eggplant comprehensively tests your EMR system as if it were an end user to ensure all your providers and clinicians can treat their patients. More than that, Eggplant uses intelligent automation to test all the permutations and variances of orders and workflows to make sure even the unexpected is tested.

Eggplant can comprehensively test the entirety of your extended EMR system. We have worked with Epic, Cerner, Allscripts, OpenEMR, MEDITECH, Midas, Sunquest, 3M Coding and more.

¹ Death by a Thousand Clicks: Where Electronic Health Records Went Wrong? Fortune, 2019.

CHAPTER 2

Making Continuous Care a Reality



Making Continuous Care a Reality

Just as users follow workflows, Eggplant follows workflows to navigate and create test cases. Eggplant uses the workflows, variances in those workflows, and input variables to intelligently auto generate test cases. Eggplant can then prioritize and execute those test cases to ensure full test coverage while reducing cost and risk.

At the heart of Eggplant is a comprehensive automation engine which drives the EMR software the same way a user does, by clicking buttons, typing information and analyzing reports on the screen of any device, platform, or interface; Eggplant Functional accesses and tests your EMR the same way your users do. Switching applications and even devices is incredibly easy to do in Eggplant, allowing full end-to-end testing. Eggplant can even test mobile workflows and mobile documentation testing.

Eggplant tests the performance of your systems to ensure Citrix load times meet expectations. You can execute tests any time of the day or night. Release or implementation quality can be assured through predictive analytics and the result is a high-quality, low-touch automation tool that can do exactly what your users do.

Eggplant is Health Insurance Portability and Accountability (HIPAA) compliant and a non-invasive solution which resides 100% inside your own firewall and does not need any software to be installed on your server.

Eggplant can be installed and configured in minutes and can be used by your EMR analysts without the need for a deep automation testing background.

Eggplant is also committed to user education and empowerment. We have online training and certification classes for your analysts as well as comprehensive, easy to understand documentation.

CHAPTER 3

End-to-end EMR Test Automation



End-to-end EMR Test Automation

Eggplant is a platform tool that makes sure your EMR works as expected. It does this by connecting automated testing with robust analytics and insights to deliver a holistic experience. It ensures that data is flowing from one system to another without error.

Healthcare customers who use Eggplant take their Eggplant usage beyond testing. With Eggplant, you can access, test, and stage:

- Add patients
- Create a help desk
- Environment staging
- System alters
- Timings
- Technical dress rehearsal
- Training environments
- Security patches
- Testing employee credentials
- ERP software
- PACS
- Blood bank software
- Patient portals on mobile devices
- Critix storefront
- Lab
- Custom internal applications

The Eggplant test and automation software is easy to use, tests as much as possible and logs everything in a clear way.

Our product helps fill in the gaps in hospitals' current testing practices by allowing hospitals to not only test their current tests more consistently, but to test more than they could with manual testing. Eggplant is also designed to allow Subject Matter Experts to be more involved in the testing process by allowing them to easily create the workflow models and record their actions in the EMR for Eggplant to convert to automation. Eggplant allows easy sharing of resources and promotes modulization of test scripts ensuring easier maintenance and faster implementation. Our healthcare customers are able to ensure quality and user experience through Eggplant's robust analytics capability.

CHAPTER 4

Eggplant Use Cases and Case Studies



Eggplant Use Cases and Case Studies

Case Study: Full Integrated End-to-end Tests with Multiple Systems

The challenge:

Full end-to-end integrated tests need to track the patient through multiple interfacing systems, not just Epic. Workflow steps need to happen in multiple systems to fully test out a patient's journey. Patient data is sent to different systems and back through HL7 and FHIR interface messages which need to be validated.

Our solution:

Since Eggplant's automation engine can use images and text recognition, users can test any EMR system. This means that we can easily test the entire workflow. For example, for many of our customers the first part of the test is logging into Epic as an ED Registrar to arrive and register the patient, the next part would then be switching users and logging into Epic as the Nurse and ordering a lab test.

The next step involves logging into Cerner Labs and checking to see if the order interfaced correctly and then resulting the lab. Eggplant can automate every step of this process. Eggplant can also change the order of the workflow, and test what happens if the lab order is sent to Cerner Labs before the ED registrar has completed registration. In between steps, Eggplant can load interface messages and validate interface messages.



Case Study: Test/training Staging

The challenge:

Customer had a number of one-off tests or training environments which need admitted patients, clean beds, or patients with appointments. Creating hundreds of patients and admitting them manually would take analysts hours and could push testing or training past deadlines.

Our solution:

Eggplant is used for test or training setup. Eggplant can read data from a spreadsheet, then go through the steps needed to create, register and admit test patients in whichever environment needs them. Once the test patient is created and admitted or an appointment is created, Eggplant can then read the MRN or CSN from the screen and update the spreadsheet. After all patients have been created and prepped, Eggplant can then email the spreadsheet to the correct party(ies) for further manual action. Eggplant can also do time consuming tasks such as logging in as a bed clearing user and marking all beds as clean.



Case Study: Test All Billable Orders

The challenge:

A customer doing a new Professional Billing application install wanted to check that all departments were set up correctly for billing. They wanted to test all billable orders in every new department.

Our solution:

All orders per provider and department were in an excel spreadsheet. The Eggplant users were able to use our workflow recording functionality to quickly create a test script.

Eggplant then pulled the relevant information from the spreadsheet to create a test patient in Soarian, made and check in an outpatient appointment in the specified department with the correct provider. Next it logged in as that provider in PowerChart, and dropped the charge in clinical system. If any change was unorderable or the department or provider was not schedulable, Eggplant made an annotation in the spreadsheet and start on the next line. Finally, Eggplant then logged back into Soarian and made the sure charges appeared correctly; so so, it marked a pass in the excel spreadsheet. All with minimal manual intervention.



Case Study: Multiple Test Environments

The challenge:

Customer had many different application environments based on geographical region, application version, build migration and data population. Customer did not want to maintain multiple versions of the same test for each test environment.

Our solution:

Eggplant can use the same test resources for multiple test systems with minimal configurations. Since the Eggplant test engine uses images and text to automate workflows, changing test environments is as simple as telling Eggplant to look for a different icon in the test case.



CONCLUSION

Good Software Helps Hospitals Thrive

Technology has transformed healthcare, but the systems medical professionals rely on have become bulky, complex, and hard to test. Test and deploy the latest software updates and critical patches for optimized patient and healthcare worker experiences.

Eggplant Test & Automation Intelligence allows you to automate testing for EMR systems and devices, including healthcare workflows, application interfaces, and medical devices, with one test automation platform. To learn more, visit <https://www.eggplantsoftware.com/industries/healthcare>





Keysight enables innovators to push the boundaries of engineering by quickly solving design, emulation, and test challenges to create the best product experiences. Start your innovation journey at www.keysight.com.

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