### Introduction

Eggplant® Functional is the unique and innovative software test automation solution from Eggplant that can verify the functionality and user experience of any application — from mobile to mainframe. Providing the ability to test across any technology by seeing exactly what's displayed on the GUI, Eggplant Functional executes test routines in exactly the same way that a human user does, enabling end-to-end, cross-platform, and technology-agnostic testing. APIs can also be combined, where appropriate, to include non-visual elements for a truly holistic approach. Eggplant Functional helps you deliver better software in less time and at lower cost.

### Eggplant Functional Overview

Eggplant Functional uses patented, image-recognition technology to provide robust automation across the entire user interface. The solution allows for very simple development of automated routines to execute tests against any technology through a series of unique features, including:

- Sophisticated image recognition to see the screen of the system under test (SUT).
- Easy-to-use test defined in SenseTalk.
- A two-system architecture that enables non-invasive testing.

Beyond the unique capabilities of Eggplant Functional, there is a requirement to ensure that test solutions such as Eggplant Functional can support external functions, such as test script and test case management, communication with continuous integration tools and bug-tracking systems, and support of traditional and DevOps environments. In addition, more traditional programming languages can deliver extended integration by directly controlling Eggplant Functional.
Image-recognition technology

Eggplant Functional’s patented technology is recognized as unique due to the use of sophisticated image recognition technology over a two-system architecture. The solution’s image-based approach means that Eggplant Functional sees the screen in exactly the same way a human user does. Removing the dependency of understanding the code of the SUT enables Eggplant Functional to remain completely technology-agnostic, automating workflows to verify functionality, performance, and the user experience within the environment at every stage of the test.

SenseTalk

Automation is meant to make testing easy, and therefore should be easy to implement. Scripting in complex development languages such as Python, Java, or VBScript introduces difficulties that slow down implementation, limit expertise, and have hidden costs when conducting training and onboarding the tool for use across the team.

SenseTalk is Eggplant Functional’s approach to allow users who aren’t developers to create, modify, and execute test scripts with ease. A very English-like language, SenseTalk is easy to read, learn, and implement.

Two-system architecture

Traditional testing solutions have the inherent overhead of being installed on the SUT, impacting the performance of hardware and the environment in which the application is designed. Eggplant Functional’s architecture allows it to test across two systems to ensure a non-invasive testing approach. The Eggplant Functional test controller is installed on one machine and remotely connects to the SUT.

As displayed in Figure 1, Eggplant Functional remotely analyzes the user interface to communicate with multiple SUTs of different types.

![Figure 1: The two-system model within Eggplant Functional.](image)

Live mode and capture mode

Within Eggplant Functional, there are two modes of operation. Live mode allows the tester to freely interact with the SUT and even allows users to execute manual testing capabilities. To build automated test routines, Eggplant Functional enters capture mode, which allows users to navigate through the application under test following the steps of a manual testing procedure, and in turn, automatically writes an Eggplant test.
Advanced Functionality

Optical character recognition

In addition to the sophisticated image-recognition algorithms, Eggplant Functional incorporates a powerful optical character recognition (OCR) engine that supports over 200 languages. This allows you to focus your testing on your target market, as well as recognize and verify dynamic data displayed on any screen.

Cross-platform, cross-device testing

The only data that Eggplant Functional needs is the graphical information about the pixels, so that every SUT is treated in exactly the same way. This capability, combined with the image-level approach, means that Eggplant Functional can test any technology, from mobile to mainframe:

- Desktop — any operating system (Linux, macOS, Windows)
- Browser — any browser (Chrome, Firefox, Internet Explorer, Opera, Safari) and technology (Flash, Flex, HTML 5, Silverlight)
- Mobile — Android, Blackberry, iOS, Symbian, Windows
- Embedded — any embedded RTOS framework, including any other technology with a user interface, from mainframe to server to cloud.

Figure 2: Eggplant Functional is a universal solution.
Multidevice, end-to-end testing
Verifying the entire architecture and infrastructure across systems is imperative to ensure complete compatibility and integration across the environment. Using Eggplant Functional’s technology-agnostic approach supports the seamless transition of tests across multiple systems or devices, without the need for any human interaction to verify any business or mission-critical system.

ODBC data-driven testing
During many test scenarios, the requirement to push variables or different data sets through the application under test is frequently required. Eggplant Functional includes full ODBC integration to enable multidimensional, data-driven testing or data verification during any test cycle. In addition, simple text/CSV-stored data can be utilized to execute these tests.

Languages
Eggplant Functional can be controlled through any system or language that supports XML-RPC, including traditional languages such as Java, Python, and Ruby. Figure 3 illustrates the simplicity of using Eggplant Functional launched in drive mode from the command line, and running as a background process. Commands sent from the XML-RPC framework are passed to Eggplant Functional, which runs the image-based tests and returns the results.
Eggplant Functional Integration

The application lifecycle consists of multiple elements, and Eggplant Functional delivers an extensive solution to automate test execution. Test management and continuous integration form an important part of the testing ecosystem.

Eggplant Functional includes specific adaptors with official APIs to enable communication between the Eggplant Functional controller and third-party solutions and bespoke, in-house solutions.

These integrations include:

- IBM Rational Quality Manager (RQM)
- IBM UrbanCode Deploy
- HPALM
- Zephyr
- JIRA
- National Instruments Test Stand
- Jenkins/Hudson
- Visual Studio Team Foundation Server (TFS)

Additional Benefits

Data entry
As Eggplant Functional replicates every action performed by the end user, it can replace labor-heavy, manual, data-entry processes. Using data-driven testing techniques allows for basic, repetitive population of generic data files to be fully automated from end to end in a faster, more efficient, and cost-saving approach.

User acceptance testing
While physically driving the SUT to verify workflow and standard regression packs, Eggplant Functional can immediately verify the user experience of the application, eliminating the need to execute monotonous, manual user acceptance tests (UATs). Eggplant Functional will interact with the pixels on the screen to quickly verify the performance of the top level of your application.

Flexible architecture
Traditional testing products require installation on the SUT with an instance of that testing product on every SUT being tested. Because Eggplant Functional has a two-system architecture, it enables a single instance of the solution to remotely test a number of SUTs in different locations.

Ease of use
Translating manual test cases into automated scripts with Eggplant Functional is very easy. The user can step through the process by capturing images and selecting the relevant function. There is no requirement to learn complex scripting languages such as Python or Ruby — Eggplant Functional is plug and play.

Support framework
The Eggplant support team is a group of highly skilled individuals with a vast amount of test automation experience. Under the standard licensing agreement, we provide unlimited technical support, face to face and through email and telephone. Eggplant is committed to ensuring that as a customer, you maximize the potential of your Eggplant investment.
Professional services partnerships
In addition to on-site visits and unlimited support from our support team, Eggplant manages an ecosystem of partnerships that allow for extended training and resources to support your project requirements with Eggplant expertise.

Eggplant Functional License Model
Eggplant Functional is sold on a term basis, which includes:

- Full use of the latest version of Eggplant Functional.
- Full support and maintenance.
- Free access to all new product releases.
- Full access to our online guides and training materials.
- Inclusion in our customer success program.

A development license allows a tester to use the full functionality of Eggplant. Most important, this includes both creating and executing test scripts. An execution license allows a tester to execute existing Eggplant scripts, but they cannot develop scripts.

For more details about Eggplant Functional, please send an email to sales@eggplant.io
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About Eggplant
Eggplant provides user-centric, Digital Automation Intelligence solutions that enhance the quality and performance of the digital experience. Only Eggplant enables organizations to test, monitor, analyze, and report on the quality and responsiveness of software applications across different interfaces, platforms, browsers, and devices, including mobile, IoT, desktop, and mainframe. Learn more at eggplant.io.