HP Unified Functional Testing Software

Test early, test often, test continuously. This is the mantra for today’s rapidly delivered modern applications. Now, with HP Unified Functional Testing (UFT) software, you can rapidly automate the functional testing of transactions that span multiple application layers in a solution that ties manual, automated, and framework-based testing together. HP UFT slashes the cost and complexity of the testing process while driving in continuous application quality.

With HP Unified Functional Testing, testing teams are empowered to:

• Automate testing of multi-layer test scenarios, including GUI and API testing, within a single, integrated software platform
• Leverage an innovative image-based automation with HP UFT Insight
• Drive relentless efficiency in automation through a powerful visual user experience and toolset with a brand new IDE
• Implement end-to-end testing to discover defects you would have missed if you only tested the functionality exposed through the graphical user interface (GUI) or a single service or component
• Support the industry’s deepest set of GUI and API technologies and even test emerging technologies with innovative HP UFT Insight object recognition that recognizes controllers by their appearance
• Leverage the efforts of manual testers with supported conversion of manual test sets to automated tests
• Adopt a proven test methodology for efficient testing with a business process-based test framework by supporting the creation of HP Business Process Testing (BPT) components

Figure 1. HP Unified Functional Testing—a unified software solution for multi-layered testing

Validate across layers. HP Unified Functional Testing allows you to test a transaction that spans multiple layers of an application.
Agile teams and rapid change drive increased need for automation

Today’s QA teams find themselves at an inflection point. The rapid assimilation of Agile methods across application teams results in faster, if not continuous, delivery and the rise in composite application architecture signals the need for more testing especially earlier in the process to ensure issues surface early and often. And while these new technologies and initiatives increase the workload for QA teams, budgets are not growing to support the added pressure. Over half (58%) of surveyed companies say that their QA budgets have stayed the same, decreased, or there is no dedicated budget for testing at all, while only 5% report significantly increased budgets. (2011–2012 World Quality Report, Cap Gemini and HP)

QA teams need to focus their testing resources where they can make the most impact: on early and exploratory testing, while increasing the use of automation. Simplifying the creation of automated tests at the GUI, API, and end-to-end level promises high quality and greater efficiency. It also frees up testing teams to focus on early authoring of test cases, exploratory testing, and architecting a test framework for re-use to minimize ongoing test maintenance.

Besides the rapid transition to Agile and iterative application development methodologies, testing teams also face an accelerating pace of new technology adoption for mobile, web, and hybrid application modernization. This dizzying array of constantly evolving technologies will challenge testing teams to learn and accommodate without the assistance of consistent tooling that supports new technologies at the speed of innovation.

So how does the stretched testing team successfully test modern applications in the face of constant changes in technologies and processes? Ask yourself these questions:

• With Web 2.0 and rich Internet applications (RIA), mobile platforms, cloud, component- and service-oriented architectures (SOA), development of modern applications is faster, cheaper, and more nimble. But how will your testing tools keep up with ever-changing technology?
• IT organizations are taking on Agile and other iterative development methodologies. But how can QA teams participate in and automate testing in the early stages of development?
• As applications become increasingly composite, how will you test GUI and services?
• Traditional roles such as business analyst, testers, and developers are coming closer together. Are your testing teams ready for this transformation?

HP Unified Functional Testing is an automated software testing solution addressing each of these challenges.

It is more than another step in the evolution of testing. It is a leap forward in testing modern applications, and it can dramatically improve software quality while cutting testing costs and complexity even in the most rapidly changing environments.
“The new HP UFT software will continue playing an important role in our application development life cycle. HP UFT will allow us to deliver 99% error-free software with minimum effort aiming for zero defects in future production deployments while at the same time decreasing issues to more than 20% current levels.”

—IT manager, medium enterprise pharmaceuticals company

Peeling back the multi-layered application

Today’s applications are no longer monoliths, residing on a single server with a point-to-point connection. Today’s applications are agile, rapidly assembled from existing and new components and shared services, that may exist inside a data center or in the cloud. While this promises application teams the ability to respond quickly to business needs, it also increases the rate of change and complexity for testing teams.

A modern business process can begin with a transaction request from a web application or mobile application user with a smart phone, connect to a billing system, register a new transaction on an ERP system, send a shipping request out to a cloud service, send an email notification through the email server, and, once all steps are verified, return to the web or mobile application to finish the process with a confirmation message. These processes not only span multiple application components, but also perform complex steps below the GUI layer within what is sometimes referred to as the “headless layer.” The headless layer can contain any number of shared services, message queues, database abstraction layers, and other GUI-less entities, which are typically accessed through API calls.

Testing multi-layer applications in an Agile environment requires not only testing the GUI but also testing the individual APIs as they become available, testing the GUI layer, and the overall business process, integrations, and ultimately, the end-to-end process. With a single solution that offers test automation, QA teams can begin testing earlier in the development lifecycle—testing headless services before the GUI is ready. Through automation, teams can test services early and often, identifying defects before the application reaches a state of maturity where it can become more expensive to make changes, delay release cycles, or leak defects into production.

HP Unified Functional Testing addresses these challenges and represents a dramatic advance in testing modern applications.
UFT highlights: validating an application throughout the layers

HP Unified Functional Testing software provides functional and regression test automation for every major software application and environment, including advanced Web 2.0 toolkits, leading development technologies, web services, enterprise resource planning (ERP), and customer relationship management (CRM) applications. And now with the addition of HP UFT Mobile and the Perfecto Mobile device cloud, testing is extended to the plethora of rapidly changing mobile device platforms without the expense of setting up a multi-device test lab.

In addition, HP Unified Functional Testing with UFT Insight has the ability to learn new technologies as a human would. Testing delays are often caused by testing tools not keeping up with the accelerating speed of new technologies. HP UFT Insight breaks down these barriers with innovative image-based object recognition, which allows the testing software to recognize and record any application, irrespective of the tool used to build it.

Figure 2. HP Unified Functional Testing brings API testing together with GUI testing in a single, visual environment.
HP Unified Functional Testing offers choice of script-based or keyword-driven testing, which simplifies test creation and execution. With a powerful test flow viewer, testers can build test cases by capturing flows directly from the application screens and applying robust record/replay capturing technology.

With HP UFT graphical test flow view, both API and GUI tests display in a graphical area called the canvas, which provides a clear visual representation of the test flow, no matter how complicated. In the canvas, the tester can manage actions and change their order in the test, run and debug the test from or to a selected action, and manage parameters. As a result, test flows are clearly diagrammed with corresponding actions, activities, and parameters, providing a much clearer understanding of the test logic and flow—so vital when automating complicated composite application tests and orchestrated business processes.

In addition, HP UFT power users have full access to the underlying test and object properties through an integrated scripting and debugging environment that is synchronized with the key word view and includes time savers such as auto-completion of code, customized and built-in code snippets, and tools for labor-intensive validation activities such as file-content checkpoints (result vs. source), bitmap checkpoints (validity of graphics on a tester’s screen), and array checkpoints (presence or absence of values).

HP UFT is designed for test automation collaboration among tester workgroups. It includes technology for managing application definitions or objects in the object repository manager. Based on an open XML format, the object repository manager lets teams collaborate and share application object definitions, and it keeps object-level changes synchronized throughout test creation efforts. Users can also share function libraries, application asset definitions, and data-driven spreadsheets across workgroups.
Bringing it all together

HP UFT supports rapid creation of automated tests from manual recordings through integration with HP Sprinter, the innovative HP manual testing application. With HP Sprinter, manual testers take actions on an application while Sprinter captures and saves information about each user action and relevant test object in the background during the run session. After the Sprinter run session ends, the manual tester can export the captured user actions, test objects, and comments to an automated test data file in XML format, which when imported to UFT, converts it to a UFT GUI test with a local object repository.

This method creates a seamless workflow between manual testers and automation experts testing the same application and supports organizations maturing automated testing techniques. And when working with HP Application Lifecycle Management (ALM) and HP Service Virtualization, functional testers have the extended environment needed to prioritize testing efforts, collaborate with development, automate development and testing scheduling, build verification and lab management, and test even when faced with service and component constraints.

With HP UFT integration to HP Service Virtualization, teams can create simulation projects, which contain virtualized services that simulate actual services that are often constrained, not fully built yet, or not accessible for testing. Then, in HP UFT, the tester can load one or more simulation projects and once deployed they can instantly be used as part of a UFT test, removing the delays that often interfere with projects dealing with rapidly changing composite applications and cloud delivered components.

Finally, HP UFT is extended for mobile applications with the addition of UFT Mobile, adding complete mobile device testing without the need to provision an entire mobile device lab. And for testing teams and test architects looking to accelerate the population of their business process testing framework even faster by leveraging pre-build assemblies of testing components, HP Turnkey Test accelerators leverage HP UFT to offer complete solutions for packaged applications such as SAP and Oracle.
About HP functional testing solutions

HP offers a complete suite of software and services for functional testing that is based on a common user experience and grows with your needs. Designed to both accelerate testing maturity and address the industry’s widest array of technologies, the HP functional testing suite helps you test more, and test faster for high quality with Agile delivery. Get started with highly efficient manual testing, seamlessly convert manual test sets to automated tests, leverage the unified user experience to move from GUI and API testing to complete end-to-end testing and build out a framework of re-usable components at each step of the way to ease maintenance and drive ROI of your testing efforts. Only the HP functional testing suite gives you the flexibility to test as you need with the simplicity of an end-to-end comprehensive testing environment.
HP Services enhance your investment in testing solutions

Get the most from your software investment. HP provides high-quality software services that address all aspects of your software application lifecycle needs. With HP, you have access to standards-based, modular, multi-platform software coupled with global services and support. The wide range of HP service offerings—from online self-solve support to proactive mission-critical services—enables you to choose the services that best match your business needs. For an overview of HP software services, visit managementsoftware.hp.com/service.

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