Data sheet

HP Unified Functional Testing software

Automate your testing for continuous delivery of high-quality applications

Test early, test often, test continuously. This mantra guides agile software development and testing organizations working hard to reduce delivery cycles to get the innovative software fueling the engines of business in the hands of ever-demanding consumers. Under the pressure to release faster, quality can often become a casualty with undesired and costly consequences.

So how does a challenged development and testing team inject quality in an ever-shrinking development window? The answer is in the assiduous adoption of test automation and continuous integration. Combining continuous integration and test automation practices can enable your teams to test early, test often, gather real-time feedback, and ensure uncompromising quality even in the face of rapidly shrinking release cycles.

However, automation can feel unattainable for testing teams lacking the software infrastructure to guide their efforts to areas of greatest need, to simplify the process of creating test automations, and to shrink the learning curve required to test both user interface and application logic—and ultimately connect it all together from end to end.

What you really need is a unified approach for test automation. One tool to test it all: front-end GUIs, communications logic, and back-end services. One tool focused on automating the testing of transactions that span the multiple application layers and APIs that make up today's software landscape of loosely coupled and interconnected business processes.

What's more, you need a solution that can leverage your existing investment in manual testing to jumpstart your library of automations, and a solution that integrates well into your application lifecycle or test management repository to ease ongoing test asset maintenance and encourage test asset reuse rather than duplication of effort. You need a test automation solution that evolves in a manageable, cost-effective way as your footprint of test automation assets expands with the adoption of continuous integration and agile delivery.

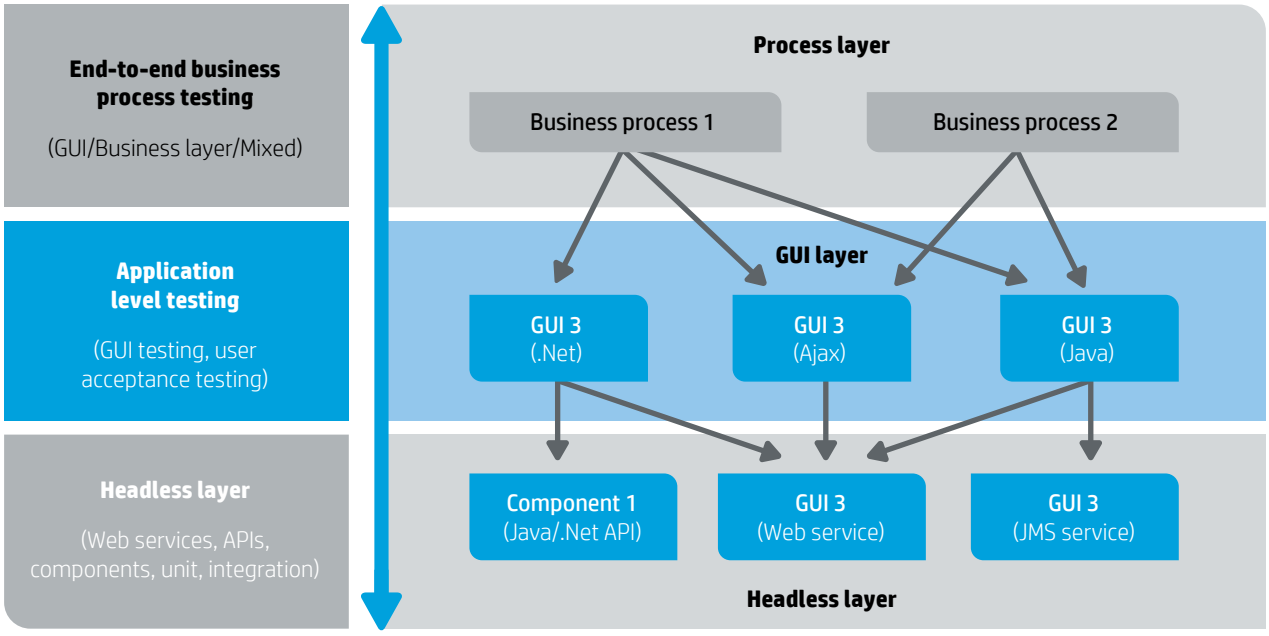
This solution is HP Unified Functional Testing (HP UFT) software. One software solution for today's rapidly evolving modern, mobile, agile, cloud-provided, and composite applications. HP UFT software automates testing through an intuitive, visual user experience that ties manual, automated, and framework-based testing together in one IDE. This far-reaching solution significantly reduces the cost and complexity of the functional testing process while driving continuous quality.

Test more, test earlier

HP UFT boosts your testing team efforts to test more and test earlier through:

- **A unified software solution with a visually intuitive IDE (integrated development environment)** to simplify the process of creating automated tests for all parts of an application—web front end (GUI), integration, and back-end (API/services). And with UFT Mobile, which extends the power of UFT to mobile devices, you can leverage your investment and knowledge to address the challenges of mobility.
- **The ability to bring automated functional and regression tests into your continuous integration process** to test more and test faster. Along with unified testing automation, HP UFT is fully supported with continuous integration software, such as Jenkins.
- **Investment protection by leveraging manual testing efforts to create automated tests.** HP functional testing solutions preserve your investment as your testing organization matures in its ability to automate testing. It gives you the ability to automatically import and convert HP Sprinter manual test recordings to HP UFT test automation assets.
- **The ability to manage and share test automation plans and assets within and across teams.** One of the common issues with test automation is automation script "sprawl." HP UFT integrates with HP Application Lifecycle Management (HP ALM) and HP Quality Center so that test automation plans, cases, and assets can be versioned and shared across teams, reducing duplication of effort and focusing teams more effectively.
- **An integrated test framework to help you rapidly build a test architecture with a powerful visual environment (no coding)** to accelerate test automation efforts across teams. HP UFT works with HP Business Process Testing (HP BPT), unified under a common IDE, and with HP BPT Testing Accelerators to make it highly productive to build test components linked together to support complex applications. These components can be automatically populated with HP UFT automated tests or even manual tests, making it "drag and drop" efficient to set up regression and integration tests.
- **Comprehensive technology support** with the industry's broadest support for application type—mobile platform, web platform, integration middleware, and API type, so there is no need for multiple tools to automate different types of applications.
- **Innovation that learns new technologies as quickly as you need.** HP UFT includes patented UFT insight, which enhances the software's native technology support with the ability to learn objects in a GUI the way a human would. This capability enables your testers to continue test automation even in cases when technologies are not yet formally supported.

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



Agile teams and modern applications intensify the need for test automation

"Thanks to the high degree of automation, software testers at Swiss Life are now more focused on tasks requiring specialist expertise. Today we have significantly more time to rigorously test new requirements. In the past, we were unable to test such highly complex subjects as we didn't have enough time."

– Elisabeth Zimmermann, test team manager, Competence Center at Swiss Life

Today's quality assurance (QA) teams face a disproportionate increase in the rate of application releases and application complexity without a consummate increase in test automation. Manual testing methods are simply not equipped to keep pace. While the rapid assimilation of agile methods across application teams results in collapsed cycle times and leads development teams to adopt continuous integration, it challenges the testing process to keep pace. In addition, the rise in use of APIs as shared services in orchestrated business processes increases the potential impact of a change, cascading issues that can be costly if leaked to production.

Agile development and the rise of shared service application architecture only intensify the need for more testing earlier in the process to help ensure issues surface early and often. Yet in the 2012–2013 World Quality report commissioned by HP and Capgemini, the data show that organizations have work to do to be ready for these challenges. Among the surveyed organizations, 83% use agile methods for some or all of their application development, yet a full 46% claim a lack of a consistent testing approach for agile and 67% say they don't have the right or enough tools to support their test environments.

Agile development also increases the need for early exploratory testing. Testers are good at what they do, which is pushing the boundaries on functionality and exploring all aspects of the application. When QA teams focus their testing efforts on early exploratory testing, automation can bring up the rest, effectively addressing the ongoing needs of continuous integration functional and regression testing.

Adding to the challenges of keeping pace with agile development, constantly evolving technologies challenge testing teams to adapt and accommodate. HP UFT supports the industry's most complete set of technologies directly for test automation, and UFT Mobile expands UFT's ability to create reusable test automations to the wide array of mobile platforms. And, in the case when a technology is "hot off the design table," UFT insight can help your test automation engineers continue to automate by providing a strong toolkit for object recognition.

In short, HP Unified Functional Testing is an automated software testing solution proven for the challenges of today's agile, modern application teams.

Shift left functional testing for continuous quality

"We need tools that allow us to automate the test cases for all technologies in use at CSS, current and future, to as great a degree as possible. By covering such a broad technological base, HP Unified Functional Testing software gives us the flexibility we need to achieve this. So far, we have not faced any challenge we couldn't handle."

– Erich Barmet, head of Test Management, CSS Insurance

Functional testing of multi-layer applications in an agile environment requires testing the integrity and functionality of the individual APIs as they become available, often early in the development cycle. From API testing, teams then test the GUI layer, often across a wide spectrum of mobile and web platforms. After GUI and API testing, the team needs to extend the test scenario to encompass the integrations and, ultimately, test the end-to-end process. With a single software solution that offers the full gamut of test automation—API, GUI, and business process—your QA teams can test earlier in the development lifecycle—testing the integrity of the APIs, before the GUI is ready.

With automation freeing up tester time, your QA teams can focus on exploratory testing while testing of the APIs and GUI variants becomes automated in the continuous integration process. This exploratory testing often results in discovering issues before the application reaches a state of maturity where it can be expensive to make changes, delay release cycles, or worse, leak defects into production.

In addition, a common barrier to continuous testing is the availability of the services or application components needed for the application under test. To help you overcome this barrier, HP UFT is fully integrated with HP Service Virtualization, powerful software that enables your testers to use simulated services that stand in and behave like the actual application component. With UFT integration to HP Service Virtualization, your testing teams can achieve delay-free continuous testing.

Ultimately, HP Unified Functional Testing is a powerful enabler for your efforts to test earlier and test often—for uncompromised application quality with the need for speed.

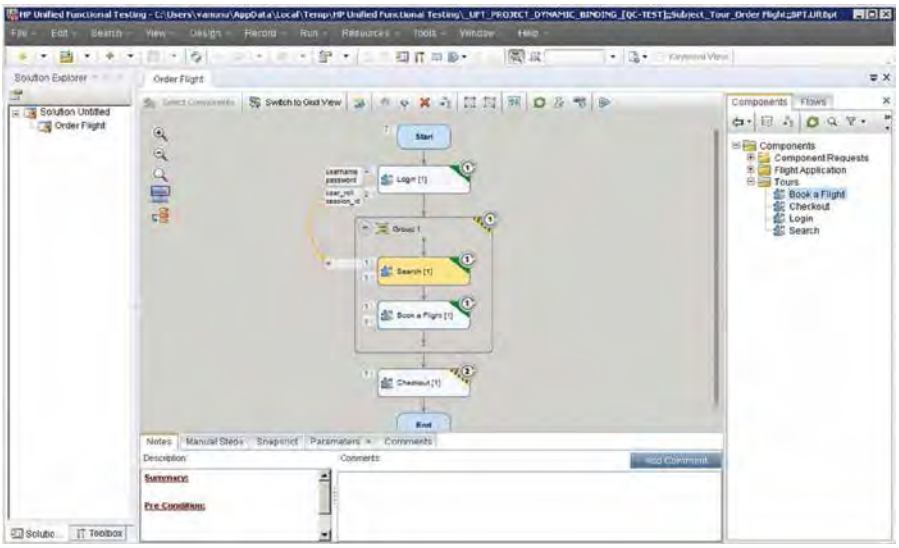
"By introducing automated functional testing, we've seen a remarkable change. Testing times for one application have fallen from six man-days to a few hours. Proactively identifying defects at an early stage is a major step towards improving application quality within our complex architecture."

– Abdullah Cabaluz, assistant manager for testing, İşbank

HP Unified Functional Testing: key capabilities

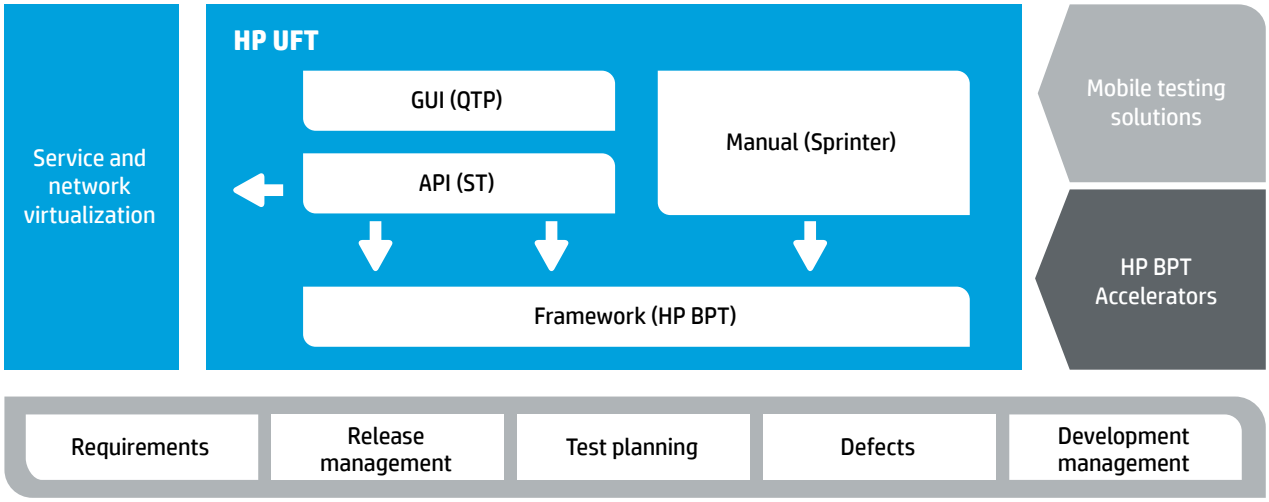
- **Comprehensive functional test automation across a wide array of technologies:** HP UFT provides functional and regression test automation for every major software application and environment, including advanced Web 2.0 toolkits; leading development technologies; Web, REST, and SOA services; and enterprise resource planning (ERP) and customer relationship management (CRM) applications. In addition, HP UFT supports cross-browser testing, a major challenge for today's web applications with support for all major browsers, including Chrome, Internet Explorer®, FireFox, and Safari.
- **A choice of test creation options:** HP Unified Functional Testing offers a choice of script-based or key-word-driven testing, which simplifies test creation and execution. With a powerful test flow viewer, your testers can build test cases by capturing flows directly from the application screens and applying robust record/replay capturing technology.
- **Insight—organically learn new technology for GUI test automation:** HP UFT's patented Insight technology has the ability to learn objects as a human would, through the way they look on the screen, enabling testing to keep up with controls that are not supported by UFT out of the box. HP UFT Insight's image-based object recognition allows the testing software to recognize and record any application, irrespective of the technology used to build it.
- **Visual, intuitive test flow viewer:** HP UFT delivers an intuitive user experience. Both API and GUI tests are displayed in a graphical area called the canvas, providing a clear representation of the test flow. In the canvas, testers efficiently manage actions and change test order, run and debug tests, and manage parameters. Tests are clearly diagrammed in the canvas with corresponding actions, activities, and parameters, providing clarity of test logic and flow—critical information when automating complex application compositions and orchestrated business processes.
- **Shared IDE for business components in tests:** HP Unified Functional Testing provides support for HP Business Process Tests within the UFT design tool. HP Business Process Testing is a proven, powerful test framework that facilitates the creation of test architecture and reusable testing components that are easily shared and maintained across testing teams inside HP ALM or HP Quality Center. BPT components can be automated tests created in HP UFT or manual test cases authored in HP Sprinter, a manual testing solution. Testing teams leveraging the power of the HP Business Process Test component-based test framework can now edit and use BPT components in their test automations directly from within UFT, without switching in and out of toolsets.
- **Unparalleled test script stability and robustness:** Intelligent object recognition, together with the embedded component-based framework of HP BPT inside HP UFT, allows easy maintainability and high reusability of assets.

Figure 3. Working with HP Business Process Testing reusable components directly inside HP UFT



- **Be ready for "mobile first" with UFT:** With the addition of HP UFT Mobile, test automation is extended to the plethora of evolving mobile device platforms. With UFT Mobile, your testing teams have the option of leveraging any device on the cloud or setting up a mobile device lab on your premises, giving you the option of quick and efficient cloud service access or the security and control of an on-premises test lab. With HP UFT Mobile "script-once" approach, one script can be created and automatically executed on all different mobile platforms, devices, and browsers, saving significant time and effort. HP UFT Mobile implements a hybrid object approach where both native controls and visual analysis-based control are supported to achieve optimal test coverage.
- **Powerful test automation tools for advanced users:** 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 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). API testing is advanced with capabilities such as creating web, HTTP request, or SOAP request steps in an API test from a network capture file and the ability to import WADL documents to generate an API test.
- **ERP Support:** HP UFT also has extended capabilities to create test automations for ERP applications. With support for architectures such as SAP iDOC and RFC, HP UFT makes testing of ERP application installations and upgrades manageable and efficient.
- **Designed for collaboration across teams and the enterprise:** HP UFT facilitates test automation collaboration among your tester workgroups. Based on an open XML format, the HP UFT object repository manager lets your teams collaborate and share application object definitions, keeping object-level changes synchronized throughout the test creation efforts. Your testers can also share function libraries, application asset definitions, and data-driven spreadsheets across workgroups. With full integration of HP UFT with HP ALM and HP Quality Center, test automation can be planned across projects and teams. All test artifacts can be published for reuse and versioned and baselines can be established in a shared asset repository.
- **Continuously test with HP UFT:** HP UFT can be integrated with continuous integration software such as Jenkins. By integrating HP UFT with Jenkins, functional and regression tests can be triggered as part of the regular build process, run results reported in HP ALM or HP Quality Center, and teams instantly alerted to issues to keep the agile timeline on track.

Figure 4. HP Unified Functional testing—core to an integrated solution for continuous testing



One unified solution: manual testing, test automation, and framework

"One-click manual to automation": HP UFT supports rapid creation of automated tests from manual recordings through integration with HP Sprinter, the state-of-the-art HP manual testing solution. With HP Sprinter, you are guided through a manual testing progression. After the Sprinter run session ends, results are exported to an automated test data file, imported to UFT, and converted automatically to a UFT GUI test with a local object repository, ready to use in automated test scenarios.

Remove testing delays through UFT Integration with HP Service Virtualization: Testing teams are constantly dealing with delays caused by constrained access to or unavailable application components or services they need for their tests. Whether it be access to systems in production, to APIs provided by cloud service providers—for a cost—or services that are not ready from adjacent development teams, the end result is the same: either a delayed testing cycle or no testing at all to keep the schedule intact.

With HP UFT integration to HP Service Virtualization, your teams can remove delays by creating virtualized services that simulate the actual but constrained services and provision them out quickly for functional and regression test scenarios. Within HP UFT, the tester can deploy the virtual service, which is then instantly used as part of the UFT test, removing the bottleneck and keeping the agile team on track. In addition, once tests are run, the HP UFT test report will include information on which services were used for the test run—real and/or virtual—and automatically reported up to HP Quality Center or HP ALM.

Networks also present a challenging factor for realistic functional testing. With HP UFT integration to HP Service Virtualization and the leverage of the HP Shunra Network Virtualization's supported integration with HP Service Virtualization, your testers can run automated tests against the virtual service with or without the latency that simulates network conditions under load—covering all functional testing scenarios in distributed applications.

About HP functional testing solutions

HP offers a complete suite of software and services for functional testing that leverages our unified framework and grows with your testing needs.

Software delivered your way: HP Unified Functional Testing, part of the HP functional testing suite, is fully integrated with HP Application Lifecycle Management and HP Quality Center to support your testing community of practice or center of excellence and manage quality throughout the lifecycle. Available on premises or with HP Software as a Service, HP UFT enables your teams to get started quickly, whether they choose to bring their test infrastructure in house or attain the efficiency of a SaaS delivery model.

HP Professional Services for Functional Testing and Quality can guide your teams with services ranging from simple quick starts—initial configuration and engagement—all the way through establishing test automation best practices, test governance, and complete testing as a service. HP Testing-as-a-Service offerings are designed to enable success as defined by you—structured and delivered based on your requirements with success being measured by your service level agreements (SLAs). Whether implementing an enterprise testing center of excellence or engineering continuous testing with continuous integration as part of an agile development practice, HP professional services can help you achieve success.

Expand your teams' knowledge and return on investment with HP educational services: HP offers a complete suite of educational services designed to jumpstart your functional testers and automation engineers and effectively plan, build, and execute functional test automation with HP software. And with HP ART, education can be customized to the needs of your unique testing process and organizational structure. Learn more about HP education and professional services at hp.com/go/software.

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