

Velocity iTest

Speed up Technology Releases and Easily Scale to Meet Test Demands by Automating 80% of Test Cases and Shortening Test Times to Minutes

Many organizational lab and validation teams are challenged to keep pace with the increased demands of validation testing. Often, teams are bogged down by time-consuming, manually intensive validation processes that can only occur during business hours. With test setup, script building, and execution taking several hours, these conditions make scaling the existing testing environment impossible.

Velocity iTest, recognized as the industry's leading solution for designing, building, and deploying automated test suites for enterprise network testing and verification, enables the rapid creation of automated, reusable tests. This automation allows teams to focus on building comprehensive test suites, speeding up bug detection in the development cycle and enhancing the quality of new technology releases. Whether using Python, open-source, or in-house automation frameworks, Velocity iTest makes it faster and easier to build and maintain test automation suites.

Keysight has helped hundreds of organizations automate test suites, expand testing capacity, and achieve the following business results:

- **Accelerate Test Case Execution** from one hour per test case to six minutes; seven test cases per day to 10 per hour
- **Drive Faster Release Cycles** to market due to research lab's adoption of test suite and best practices producing accelerated validation testing for vendor, regression testing cycle reduced from 2–3 weeks to 7–10 days
- **Extend Testing Capability** from eight hours per five-day week to 24/7 testing
- **Increase Lab Insight** with easy-to-run daily health report of lab resources

As the central part of the Velocity Automation Portfolio, Velocity Core fully automates and integrates lab and test resources into the CI/CD process.

Reduce Expenses

40% reduction in scripting costs within 1 year

Automation

80% of test cases automated

Test times halved

via continuous 24x7 testing

Highlights

- Leverage a Python-based platform for automation developers and network engineers
- Abstract the complexity of hybrid networks to create robust Python and Robot automation and verification applications
- Easily convert manual network configurations and testing workflows into secure distributable automation applications, API libraries, and keywords
- Make use of 24x7-enabled automated testing, cutting time to completion by more than half
- Boost test automation from 10% to 80%
- Achieve 98% decrease in NF regression test times, from weeks to hours

Velocity iTest Interactive Development Environment for Python, Robot, and iTest Users

Velocity iTest is the first unified Interactive Development Environment (IDE) for Python, Robot, and iTest users, providing the optimal environment for creating modern network automation and verification applications.

Our innovative Portable Automation Format (PAF) simplifies automation and adoption by enabling developers to leverage their automated applications for both lab and production use. Highly productive Velocity iTest Record-Playback and patented Response Mapping are available within Python and Robot development environments.

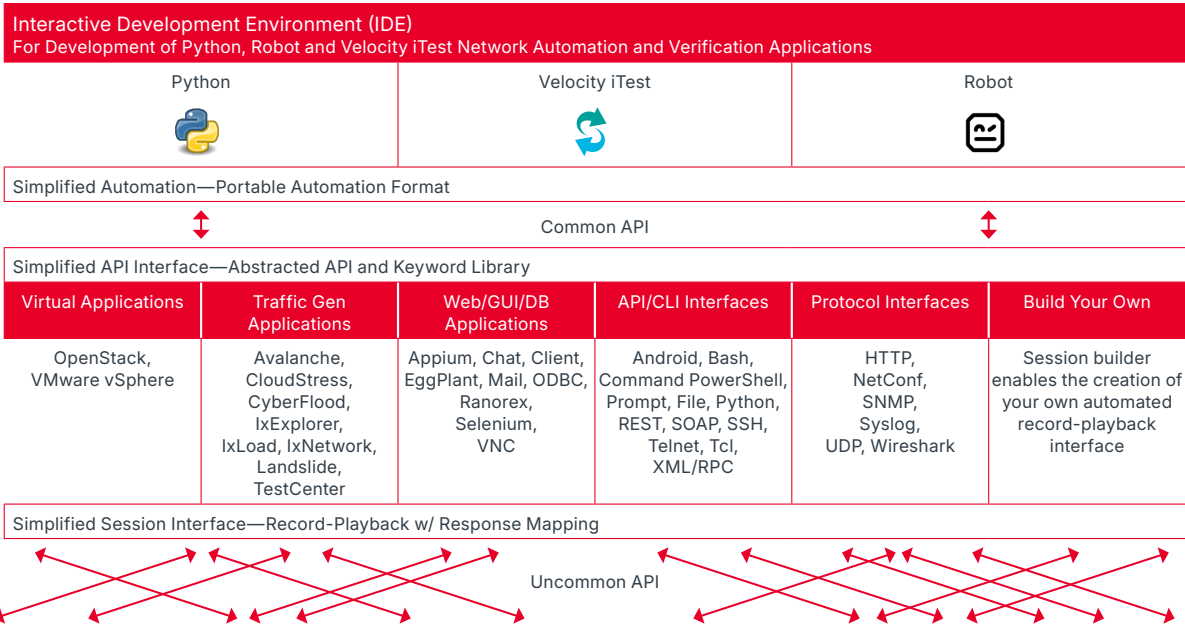


Figure 1. Chart demonstrating Velocity iTest’s Interactive Development Environment (IDE)

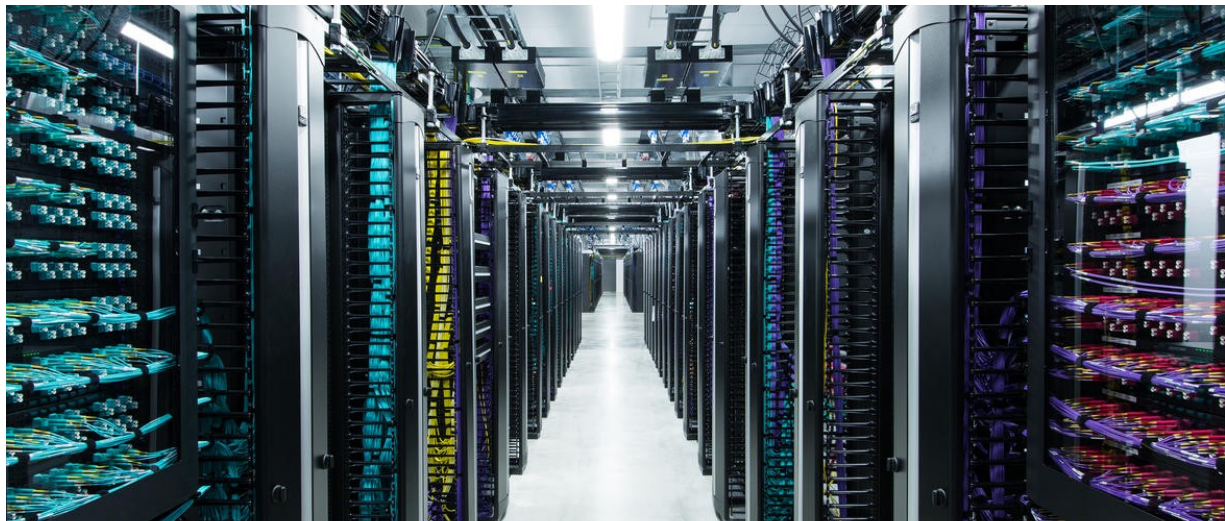


Figure 2. Photo showing heterogenous hybrid (physical and virtual) networks

Velocity iTest Key IDE Features

Explore Python-based Interactive Development Environment (IDE) for automation developers and network engineers.

Python-Based: Rapidly create, reuse and publish Python and Robot Framework automation content from a unified development environment.

Live Interaction: Real-time development and troubleshooting of network and test automation with any device, application, or system.

Record and Playback: Create automation scripts by capturing every action during a manual test and replaying the captured steps.

The screenshot displays the Velocity iTest interface. The 'Steps' table shows a procedure named 'main' with three steps: 'open', 'getEthernetNic', and 'close'. The 'getEthernetNic' step is expanded to show sub-steps: 'analyze', 'query', and 'assert'. The 'query' sub-step has a description 'Speed()' and a value '10000Mb/s'. The console shows the output of the 'getEthernetNic' step, including a list of supported ports and link modes. A 'Source and Destination' dialog is open, showing the source test case and the destination location for the Python script. The Python script editor shows the code for the 'main' function, which uses the 'getEthernetNic' step to capture network data and log it.

Portable Automation Format: Develop and export automated tests for use in any environment including lab, staging and production networks.

Response Mapping: This patented feature automatically parses complex device messages to extract the key information.

Leverage existing automation: Enhance the value of your existing Python, Robot, Bash and PowerShell content by importing them via 'File → Import'

Figure 3. Annotated Velocity iTest screenshot displaying functionality

Velocity iTest Expert Analysis and Community

Leverage integrated verification tools for expert analysis and join a community of resource experts to jumpstart your automation.

Expert Verification and Analysis

The screenshot displays the Velocity iTest interface for a test case named 'tc2_DopplerEffectSpread.fft'. The interface includes a navigation bar with 'INVENTORY', 'LIBRARY', 'SCHEDULE', 'VIRTUAL', 'REPORTS', and 'BACKUP'. The main content area is divided into several sections:

- Topology:** A network diagram showing a central 'ETN-Vertex-Hub1' connected to 'ETN-Vertex-SigGen181', 'ETN-Vertex-1-180', and 'ETN-Vertex-Spectrum1...'. A 'Pass' label is visible on the connections.
- Statistics:** A section for test statistics.
- Execution Messages:** A table with columns for Step #, Originator, and Message.

Step #	Originator	Message
0	execution	Execution started
0	execution	Testbed used in execution: file:/tmp/agent/itest/runtime1562016092659/workspace-973f75f2-c7f1...
1.3.3	message	Doppler effect has not begun yet, a before image will now be saved under the name "Before_Test..."
1.4.1	analysis	Doppler velocity and frequency have been set properly, test will continue
1.4.4	message	Emulation is playing, a screenshot of the doppler effect will be taken under the name "After_Test1..."
1.5.4	message	Doppler frequency should be 2779.70079331793 Hz, the signal analyzer measures it as 2701.674 Hz
1.5.5	analysis	The doppler frequency measured by the spectrum analyzer is within a 90% accuracy range of the...
1.5.5	execution	Test case tc2_DopplerEffectSpread has passed.
0	execution	Execution completed (1m 4s)


Figure 4. Keysight Velocity iTest provides a correlated analysis of the entire system under test with configurable, personalized reports.

velocity INVENTORY LIBRARY SCHEDULE VIRTUAL REPORTS BACKUP

Execution Reports > a_f_mw_pgw_apn_ip_testing.fttc ?

Print Report Details Rerun

INFORMATION PARAMETERS STEPS



Search

Search By: All

Message Severity: All

Step Action: All

Steps

Step #	Action	Start Time	Duration
2.4	Action: ShowRunningTest Command: -runningTestId 713 -fullInfo true	00:01:13.979	00:00:00.284
2.5	Action: ShowRunningTest Command: -runningTestId 713 -fullInfo true	00:01:29.277	00:00:00.370
2.6	Action: ShowRunningTest Command: -runningTestId 713 -fullInfo true	00:01:44.661	00:00:00.373
2.7	Action: ShowRunningTestCriteria Command: -runningTestId 713	00:01:45.045	00:00:00.228
2.8	Action: ShowRunningTestFavoritesMeasurements Command: -runningTestId 713	00:01:45.276	00:00:00.140
2.9	Action: ShowRunningTest Command: -runningTestId 713 -fullInfo true	00:01:45.431	00:00:00.225
<p>COLLAPSE RESPONSE EXPAND EXECUTION MESSAGES</p> <pre> criteriaStatus : FAILED reserveProcesses : false noteToUser : Be sure to HTTP-DELETE this RESTful API contr steps : { predecessorTcIndex : -1 predecessorTsIndex : -1 predecessorState : tcIndex : 0 tcActivity : Init delaySec : 0 } </pre>			
2.9.1	Action: call Command: wireshark -runId0 \$runId0	00:01:45.666	00:00:23.906
2.10	Action: close	00:02:09.573	00:00:00.230

Figure 5. Interact during test or post-test. Quickly pinpoint issues and easily drill down from test reports.

Join the Expert Community

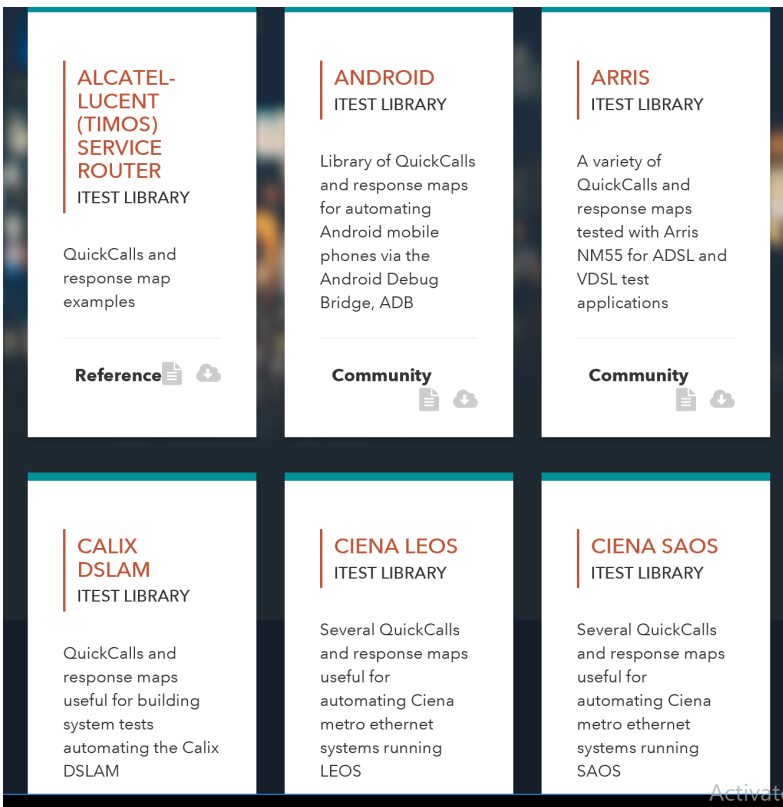
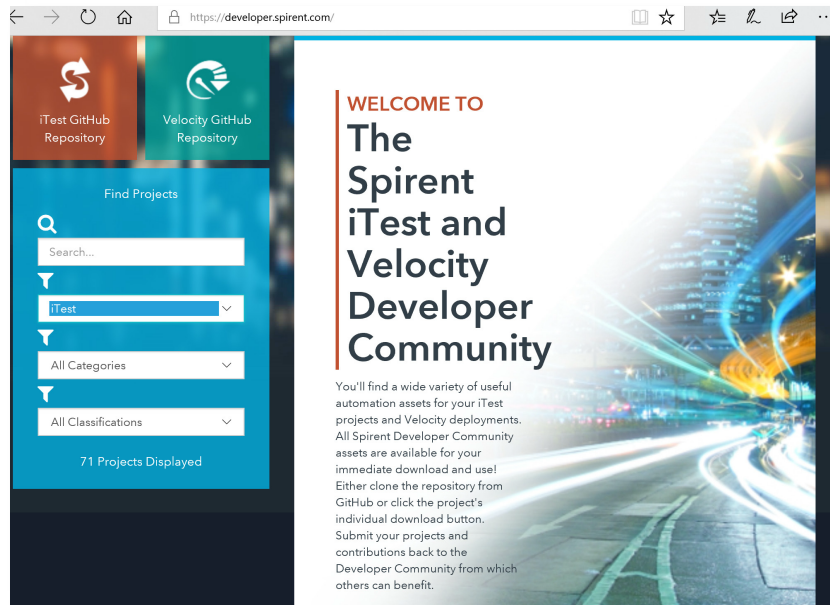


Figure 6. Two Expert Community website screenshots

Explore a wide variety of useful automation assets for your Velocity iTest projects. All Keysight Developer Community assets are available for your immediate download and use.

Either clone the repository from GitHub or click the project's individual download button. Submit your projects and contributions back to the Developer Community from which others can benefit.

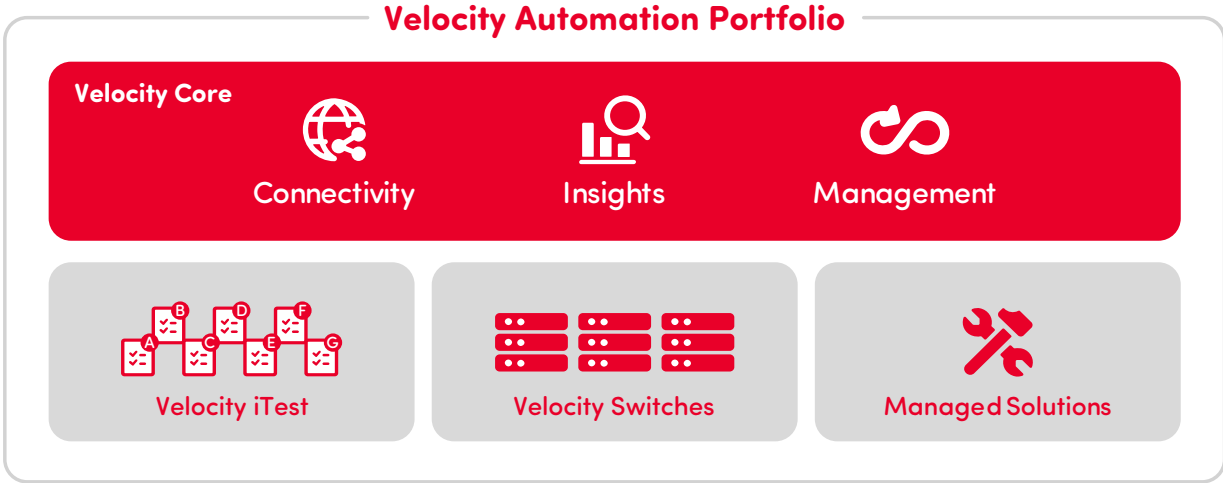


Figure 7. Chart displaying Velocity Automation Portfolio offerings

The Velocity Automation Portfolio supports the complete automation of customer lab and testing environments for large enterprise, NEM, and service provider organizations. It is the only fully integrated solution to provide automation and management of lab resources, facilitate automated test suite creation, oversee lab connectivity and topology, and provide professional services for initiative success.

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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