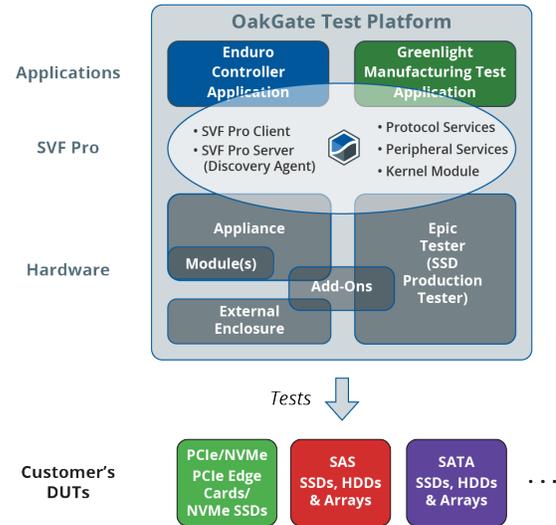


# Storage Validation Framework Pro (SVF Pro) Engine

*"The software engine driving the OakGate platform for high-performance and robust testing of flash storage"*

The industry's most advanced storage-testing software, the Storage Validation Framework Pro (SVF Pro) engine is the core software that drives the OakGate appliances. It's been strategically built from decades of industry storage experience, providing a high-performance, feature-rich foundation.

The fourth generation SVF Pro engine has been hardened over several years in intense test environments at major storage customer sites worldwide. The SVF Pro engine provides a comprehensive list of storage features, reaching far beyond basic protocol verification to deliver an unparalleled testing facility to the application layers, including the ability to mix protocols and to finely tune every aspect of any test scenario.



## SVF PRO NEW FEATURES

Compared to the third generation, the fourth generation SVF Pro features include:

- 100% backwards compatible with existing scripts and automation
- Re-architected from the ground up for scalability and stability
- Support for SR-IOV (NVMe Virtualization)
- Scatter/Gather List (SGL) enhancements
- Power management and PERST enhancements



### Protocol Support

Designed expressly for flash-based storage and solid state drives (SSDs), SVF Pro supports all popular storage interfaces, including:

- Peripheral Component Interconnect Express (PCIe)
  - Non-Volatile Memory Express (NVMe)
  - NVMe Management Interface (NVMe- MI)
  - Advanced Host Controller Interface (AHCI)
- Serial Attached SCSI (SAS)
- Serial ATA (SATA)
- Fibre Channel (FC)

### Performance Benchmarking

Using SVF Pro, deliver consistent benchmarking results, measure the true performance of the DUT, and generate a suite of performance analytics.

- Graph against changing variables, such as average read/write IOPS, bandwidth, latency, power, voltage, and temperature.
- Define variables and values to of which to iterate over, such as queue depth, read/write ratio, I/O size, I/O capping, and data entropy.

## Traffic Generation

Generate high-performance, randomized traffic profiles with ease and test scenarios that would be extremely difficult to create manually or with any other test tool.

## Error Injection

Inject pre-built or custom protocol-specific error conditions and verify that your device behaves as expected even under the worst conditions. Low-level errors provided by the OakGate drivers include underflow/overflow conditions, aborts, dropped frames, and resets.



## Protocol Analyzer

Effectively debug and analyze from early prototype bring-up through long-term I/O testing using the embedded protocol analyzer.

- Real-time traffic and error statistics
- Trigger on I/O events
- Decoded frame analysis
- Quick search and navigation
- Sort and filter features

## Data Validation

Identify common errors and data corruption. Build confidence that your device behaves as intended, and keeps data intact, even under the most stressful power-loss situation.

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## Point & Click Test Automation

Create full automation test suites without writing a single line of code using our automation tool.

## Automated Test Reports

Save time by utilizing the automatically-generated reports created by our test automation tool.

- Summary report generation
- Complete HTML test reports
- Error logs
- Pass/fail reports

## Protocol Conformance / Directed Tests

Execute hundreds of built-in conformance / directed tests that evaluate a device against its protocol. For maximum flexibility and control, create your own conformance tests with the directed test software development kit (dtSDK).

## Peripheral Control & Power Management

SVF Pro provides a seamless path to in-chassis power cycling and measurement, as well as through external enclosures. Add multiple peripheral controllers to the application interface to manage/monitor peripheral capabilities for DUTs, such as power on/off, power measurement, DevSleep on/off, and temperature.

## Customization Through APIs/SDKs

Integrate OakGate resources into your existing automation framework by utilizing our RESTful web services, C-based application programming interface (API), and SDKs:

- REST API (rAPI) and C API
- Directed Test SDK (dtSDK)
- Python SDK (pySDK)
- Manufacturing SDK (mSDK)
- Command line interface (CLI)