



# Support, Help, and Resources

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SNIA Emerald™ Training

*SNIA Emerald™ Power Efficiency  
Measurement Specification*

*Version 3.0*

February-March 2018

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# Objective

- Review resources for use in Emerald testing based on the SNIA Emerald™ Power Efficiency Measurement Specification V3.0.1
- Available at [www.sniaemerald.com/download/Spec\\_v3.0](http://www.sniaemerald.com/download/Spec_v3.0)
  - ◆ Web page actively maintained to have current materials
- Review additional resources

- *SNIA Emerald™ Power Efficiency Measurement Specification V3.0.1*
  - ◆ New version of specification with file testing
  - ◆ Adopted by SNIA September 11, 2017
- *What has Changed? SNIA Emerald™ Power Efficiency Measurement Specification V2.1.1 to V3.0.1*
  - ◆ Helps testers transition from spec V2.1.1 to V3.0.1
- *User Guide for the SNIA Emerald™ Power Efficiency Measurement Specification V3.0.1*
  - ◆ Advice for testers

## ➤ Vdbench

- ◆ Required workload generator program for block access testing
- ◆ Links to owner website containing user manual, software, and license
- ◆ Shows Vdbench version required for testing, currently Version 5.04.05

## ➤ Vdbench Scripts

- ◆ Required for controlling the workload generator in block access testing
- ◆ Separate scripts for testing Online/Near-Online and Removable/Virtual Media Library testing

## ➤ SPEC SFS® 2014

- ◆ Required workload generator program for file access testing
- ◆ Links to owner website containing purchasing information
- ◆ Shows any version requirements

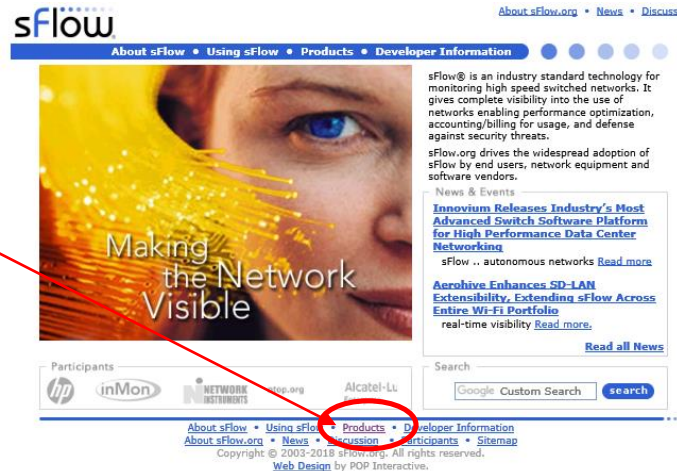
## ➤ File Access Load Driver Configuration File

- ◆ Required for controlling the workload generator in file access testing

# Software & Tools – File Access Testing continued

## ➤ sFlow®

- ◆ Industry standard technology for monitoring switched networks
- ◆ Used to obtain performance data (network MiB/s)
- ◆ Various implementations available, free and for a fee
- ◆ For list of implementations see <http://www.sflow.org/>



sflow

About sFlow • Using sFlow • Products • Developer Information

sFlow® is an industry standard technology for monitoring high speed switched networks. It gives complete visibility into the use of networks enabling performance optimization, accounting/billing for usage, and defense against security threats.

sFlow.org drives the widespread adoption of sFlow by end users, network equipment and software vendors.

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## ➤ COM Test Data Set Generator

- ◆ Program to generate test data for COM testing
- ◆ Used for both block and file access device testing
- ◆ C program provided by the SNIA
- ◆ Linux / UNIX / Windows
- ◆ Open source license

# Test Data Report Template

## ◆ Test Data Report Template

- ◆ Form recommended for use in reporting SNIA Emerald™ test results
- ◆ Excel spreadsheet
- ◆ See Training session on this topic





## ➤ Emerald Tester's Kit

- ◆ Single download containing most materials needed for Emerald testing
- ◆ .zip format file
- ◆ Not included
  - › Vdbench
  - › SPEC SFS® 2014
  - › sFlow® collector
  - › Training materials
- ◆ Updated whenever any of the included materials change

- Emerald Specification (Clause A 1) recommends use of power and temperature meters approved for use with SPEC Power® benchmark
- [https://www.spec.org/power/docs/SPECpower-Device\\_List.html](https://www.spec.org/power/docs/SPECpower-Device_List.html)

## SPEC PTDaemon Accepted Measurement Devices

- Device Ordering Considerations
- List of Accepted Power Analyzers
- List of Accepted Temperature Sensors
- Compatibility Across OS and Connection Types
- SPEC Acceptance Process for Power Analyzers
- SPEC PTDaemon update process and latest release

- Materials from this (February-March 2018) webinar series will be made available promptly
  - ◆ <http://www.sniaemerald.com/education/vendor-training>
- Slides and video recordings from SNIA Emerald V2.1 Update Training webinar series (July 2015)
  - ◆ <http://www.sniaemerald.com/training/July2015>
- Slides and video recordings from *comprehensive* 4-day training class (July 2014)
  - ◆ <http://www.sniaemerald.com/training/July2014>



- We endeavor to keep the Emerald testing community informed of changes via SNIA Emerald™ Update and SNIA Emerald™ Newsletter
- Join the mailing list
  - ◆ <http://www.sniaemerald.com/news>
- View past mailings
  - ◆ <http://www.sniaemerald.com/news>

# Additional Resources

- Storage Networking Industry Association
  - ◆ [www.snia.org](http://www.snia.org)
- SNIA Green Storage Initiative (GSI)
  - ◆ [www.snia.org/green](http://www.snia.org/green)
- For SNIA Emerald questions, including testing
  - ◆ Email: [emerald@snia.org](mailto:emerald@snia.org)
  - ◆ or Dave Thiel, SNIA Emerald Program Director  
[dave.thiel@snia.org](mailto:dave.thiel@snia.org)



# Summary

- We've reviewed the array of materials that are available to Emerald testers
- View
  - ◆ [www.sniaemerald.com/download/Spec\\_v3.0](http://www.sniaemerald.com/download/Spec_v3.0)
  - ◆ [www.sniaemerald.com](http://www.sniaemerald.com)

# Questions?