PSA 4.2.0 Release Note

The PSA 4.2 Release Note is applicable to the **PowerSync Analyzer**, the **PowerSync Programmable Load**, and the **PhyView Analyzer** instruments. The PSA **4.2** release also includes updated Reference Manuals and Installation Manuals for PSA-3000, PSL-3000, and PVA-3000 instruments.

Support for PSA-3202 and PSL-3202

PSA Software 4.2 is the first software release from Sifos that will support new **PSA-3202** and **PSL-3202** test blades for the PSA-3000. PSA-3202 and PSL-3202 test blades are designed to support future testing applications under the emerging **IEEE 802.3bt** PoE standard.

Under the 4.2.00 release, **PSA-3202** test blades may be used *interchangeably* with **PSA-3102** test blades to perform **802.3at PSE Conformance Testing**, **802.3at PSE Multi-Port Testing**, **LLDP Analysis**, and **4-pair proprietary** PSE port analysis. PSA-3202 and PSA-3102 test blades may be combined in any configuration of 12 blades in a PSA-3000 chassis.

Under the 4.2.00 release, **PSL-3202** load blades may be used *interchangeably* with **PSL-3102** load blades to perform **802.3at PSE Multi-Port Testing**, **LLDP Analysis**, and **4-pair proprietary** PSE port loading. PSL-3202 and PSL-3102 load blades may be combined in any configuration of 12 blades in a PSL-3000 chassis.

Both the PSA-3202 and the PSL-3202 offer **10/100Base-T** LLDP interfaces and they offer the ability to perform 4-pair PSE loading, testing, and analysis from *either* Port 1 or Port 2. As a consequence, future 802.3bt PSE conformance testing will be able to sequence up to 24 PSE ports in a single PSA-3000 chassis. PSA-3202 and PSL-3202 test blades enable continuous 4-pair loading of up to 12 PSE ports up to 100 watts each.

Preliminary 802.3bt Support

Under **PowerShell PSA**, PSA 4.2 software includes various low level configuration and metering features for new **PSA-3202** and **PSL-3202** test blades that will be useful in future 802.3bt testing and PD emulation. In particular, a new high level utility, **power_bt**, enables flexible emulation of 802.3bt PD's including Single or Dual Signature and PD Classes 1-8. Used in conjunction with **PSA-3202** ports, this utility can capture and display waveforms of voltages or current throughout the complete 4-pair powering sequence.

New PoE Service Analyzer

The PSA 4.2 release includes a new PSE Service Analyzer application that supports highly robust testing of both Type-1 and Type-2, including LLDP, PoE service at any PD connection point. The PSE Service Analyzer *far surpasses* PoE testing and interoperability analysis available in more common service testing devices.

Powerful New Programming Editor for PSA/PVA Software Development

With the PSA 4.2 release, developers working with PowerShell PSA to produce automation software can take advantage of the powerful features of **Notepad++** enhanced with a syntax-knowledgeable library for PowerShell PSA. The capabilities of Notepad++ well exceed earlier solutions based upon AnyEdit so that developers can create complex software with faster and less frequent debugging required.

Other PSA 4.2 Enhancements

Software Entity	Impact	Feature
PSE Conformance Test Suite	Significant	The standard **psa_report.xlsm** report template will now only produce the Interop (Risk) Index when a significant portion of available tests are run. When fewer than 16 total tests are run, the index will report "N/A" because there is insufficient data to make any Interop assessments.
	Moderate	In **class_lldp** test, resolved potential race conditions in capturing first LLDP packets from PSE's that transmit PoE LLDP within 0-2 seconds of powering and linking. This problem was more pronounced with newer Version 8 hardware that supports 10/100 links. Firmware version **3.24** is also recommended in connection with this problem.
	Moderate	Other enhancements to the **class_lldp** test to improve consistency and robustness include control of time between disconnects / re-connects and to solve a potential allocated power echo problem. In general, **class_lldp** is a more accurate, consistent test in PSA 4.2.
	Moderate	The standard **psa_report.xlsm** report template now reports PSA model number (e.g. "**3102**" vs "**3202**") along with firmware version and hardware version at the bottom of each column of test data.
	Moderate	**class_v** test modified to take advantage of post-triggered **pwrup_trace** feature to improve test performance and reliability.
	Minor	The **class_v** test will now handle a case where a PSE fails to power a 45mA class signature (**Iclass_max**) without producing error condition in the **Vclass_min** measurement.
	Minor	Enhance **class_err** so that if a PSE powers the uneven 2-event class signature after 1, 2 or 3 cycles of classification, the power-up will also be captured and displayed given that **Show Traces** is activated. Requires updated test port firmware (e.g. **3.24**).
PVA PHY Performance Test Suite	Moderate	Revise 1000Base-T receiver testing configured with **Link Monitor** to increase IDLE gaps between data packets in order to increase total IDLE time for the Gig Remote Rx indicator to update status.
	Minor	When the PHY receiver tests are run with the '**noloss**' option to inhibit the **Line Loss** impairment, reporting will now indicate "**MIN_LOSS+**…" rather than "**LOSS+**…" impairment categories.

Software Entity	Impact	Feature
	Minor	Adjusted receiver test jitter impairments based upon new characterizations of jitter tolerance across a wide field of 10/100/1000 ports. Adapted **pva_rx_10**, **pva_rx_100**, and **pva_rx_1000** to automatically work with future **version 3** PVA-3102 hardware that outputs a revised jitter profile to better meet the 1000Base-T jitter vs frequency mask.
Multi-Port Test Suite	Minor	Modified standard spreadsheet report to flag (shaded cell) if there are zero LLDP power allocations to any PD class.
PowerShell PSA	Significant	Added a new **power_bt** command to perform emulated power-ups with future 802.3bt PSE ports including 4-pair Single or Dual Signature with classes 1-8. Requires **PSA-3202** or **PSL-3202** hardware. With **PSA-3202**, the command will optionally display 4-pair voltage traces or current traces during the power-up sequence.
	Significant	PowerShell **iload** command will allow continuous steady state loads up to 950 mA when configuring PSA-3202 and PSL-3202 test ports.
	Moderate	Improved the fast chassis switching facilities **qpsa_config** and **qpsa** to better and more fully effect valid switching between different instruments.
	Moderate	Improve monotonicity of DC current meter readings in low current (e.g. classification current) bands under 40 mA.
	Minor	Implemented a scheme in PowerShell PSA to regulate hardware types that are supported by various software releases. This will have future impact of assuring that new hardware types (e.g. PSA-3000 blades) don't cause issues with older software.
PSA Interactive	Significant	Enhanced the 4-Pair Load Menu to include the **Auto-Discover** capability to automatically resolve the characteristics of a proprietary 4-Pair PSE, then configure all test port resources accordingly.
	Moderate	Implemented new Waveform Trace Excel report with improved formatting, better resolution, and now showing vertical axis units (voltage or current).
	Moderate	In the PSA Interactive Standard Waveforms menu, added option to observe **Detection** back-off over a 20 second time interval and to observe **Shutdown** Error Delay over an 8 second time interval. Requires updated PSA controller firmware (e.g. **3.13**) and test blade firmware (e.g. **3.24**).

Software Entity	Impact	Feature
PVA Interactive	Moderate	Implemented new PSD Trace Excel report with improved formatting and adding display of Pair Number and color coding.
PSA Software Installation	Minor	Removed all older **.xls** report templates. Minimum Microsoft Excel support is now Office 2007 or newer.

PSA 4.2 Bug Fixes

Software Entity	Impact	Feature
PSE Conformance Test Suite	Minor	Issues with Time and Date formatting in standard Excel report template running on certain International Microsoft Windows versions are resolved.
	Minor	Improve **det_rsource** handling of errors that may develop as det_v attempts to measure high signature step responses.
	Minor	Adjusted **pwron_maxi** from returning a small negative current for **Ilim_min** when power is prematurely removed.
PVA PHY Performance Test Suite	Critical	A problem in PSA 4.1.09 release that prevented running the PVA DC Unbalance Test application using two separate instruments, a PSA and a PVA in different chassis', is fully resolved.
	Minor	Issues with Time and Date formatting in standard Excel report template running on certain International Microsoft Windows versions are resolved.
Multi-Port Suite	Minor	The ability to specify a Multi-Port Test Sequence using **mp_sequence** with the ability to EXCLUDE specific tests using **-e** argument was remedied.
	Minor	Issues with Time and Date formatting in standard Excel report template running on certain International Microsoft Windows versions are resolved.
PowerShell PSA	Moderate	Resolved issues in trace meter configuration that could occur after configuring and using Extended voltage or current traces, that is, 1024 sample traces of with aperture **200mx**, **2sx**, **4sx**, **8sx**, or **20 sx**. Reduced possible issues in use of LLDP following Extended trace meter configurations. Also eliminated possible issues with other meters such as AC peak meter following extended trace captures. PSA/PSL-3102 firmware version **3.24** also recommended in this area.

Software Entity	Impact	Feature
	Moderate	Resolved potential race conditions in capturing first LLDP packets from PSE's that transmit PoE LLDP within 1-1.5 seconds of powering and linking. This problem was more pronounced with newer Version 8 hardware that supports 10/100 links. Firmware version **3.24** is also recommended in connection with these problems.
	Moderate	Solved problem with **psa_4pair_auto_port** running with PSL-3x02 test port failing to properly resolve proprietary PSE type "**PSE1**".
	Moderate	Solved a problem where a 4-pair current trace using an extended aperture (200mx, 2sx, 4sx, 8sx, or 20sx) was not properly combining ALT-A and ALT-B currents after the first 25% of the trace duration.

PSA-3000 "B" Controller

Sifos is introducing a new PSA/PSL-3000 controller blade that eliminates the RS-232 DB9 Console connection and replaces it with a USB 2.0 connection. Use of the console port will continue to involve an RS-232 terminal emulation to effect IP address changes and controller firmware uploads.

The new PSA/PSL controller also includes a recessed push button to reset IP address to factory default 192.168.221.105.

The new controller blade does NOT require PSA 4.2 software and it may be interchanged with existing PSA/PSL-3000 controller blades in existing PSA/PSL-3000 chassis'.

PSA-3000 "B" Chassis

Sifos is also introducing a modified PSA-3000 chassis designed to more efficiently exhaust heat. This chassis utilizes slightly higher fan capacity and a more even distribution of air flow from the twelve blade slots to keep test ports that are loading up to 100 watts per blade cooler in all blade configurations.

Mechanically, the new PSA-3000 chassis accepts all PSA-3102, PSL-3102, PSA-3202, PSL-3202, and PVA-3102 test blades.

PSA/PVA Firmware Versions

While PSA 4.2 software supports many older firmware versions, the recommended versions are:

PSA-3000 Controller: ver **3.13** or newer	**PSA/PSL-3202** Test Port: ver **4.0A** or newer
PSA/PSL-3102 or **PSA-3002** Test Port: ver **3.24** or newer	**PVA-3102** Test Port: ver **3.0B** or newer

Documentation

The PSA-3000 Installation Manual and PSA-3000 Setup Chart are updated for the PSA 4.2 software release. The PSA-3000, PSL-3000, and PVA-3000 Reference Manuals are also updated for the PSA 4.2 release. Sifos is planning to distribute new Reference Manuals and CD's to customers of the PSE Conformance Test Suite tracking service. Other users may access updated literature online at **www.sifos.com**.