

PSA 5.1.00 Release Notes

The PSA 5.1.00 Release Note is applicable to the PSA-3000 and PVA-3000 family of test instruments.

Highlights

The PSA 5.1.00 Release includes important enhancements in the following areas:

New Tcl/Tk 8.6

PSA software version 5.1.00 runs on **Tcl/Tk 8.6**. The PSA 5.1.00 software installer for Windows will place Tcl/Tk 8.6 into a \Sifos directory in a manner that is isolated from other (proprietary) versions of Tcl that may exist on the host computer and might otherwise interfere with PSA software functionality.

802.3bt 2-Pair Conformance Test

The 2-Pair PSE Conformance Test Suite and associated reporting have been extended to test **802.3bt Type-3**, 2-pair PSE's. Customers on Tracking Service may obtain the updated 2Pair CTS Key from the Sifos website in order to install the updated test suite. 802.3bt 2-Pair PSE testing may be sequenced from PSA Interactive or PowerShell PSA.

PSE Conformance Test Suite		Sifos Technologies		802.3at Conformance Report	
November 15 2019 9:01 PM		Test Mode: 30 Watt PHY		version 5.1.00	
Port Count.....	8	Sifos Interop Index*: 100%		report version 5.0.04	
Loop Count.....	1	Error Log: None			
PSE Tested: Sample 802.3bt Type-3 30W					

Test: class time												
Event Count=	3	3	3	****	3	3	3	2	Pass	3	Pass	
Event1 Tc1e1=	97.9	97.9	97.9	msec	97.9	97.9	97.9	88	Pass	105	Pass	

Faster PSA-3000 Communications

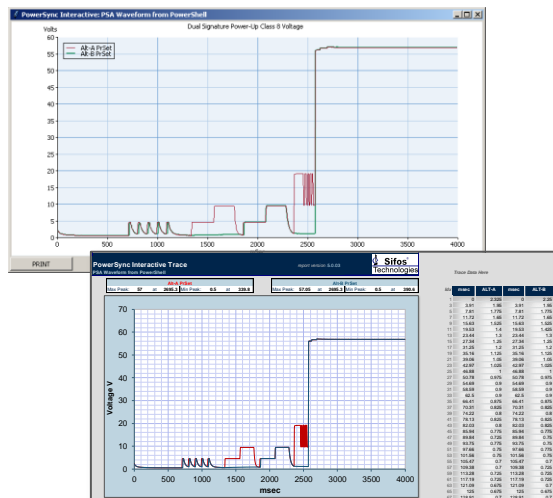
Under PSA 5.1.00 software, when connecting to a PSA-3000/PSL-3000 chassis, the communication speed between host PC and any test port will speed up by a factor between **10% and 50%** depending upon PowerShell PSA command. This means test suites and other custom test scripts will run faster. Extended traces will upload faster and firmware updates will complete faster. **NOTE!** This enhancement requires updating PSA-3000/PSL-3000 controller firmware to version **3.18**.

More Robust 802.3bt 4-Pair Power-Up Emulations

PSA 5.1.00 includes numerous improvements to 802.3bt 4-Pair power-up emulations and the underlying **power_bt** PowerShell PSA command. In particular there are improvements with PSE's that power 2-pair then revert to 4-pair, handling of PD class 0 cases, and more robust handling of LLDP negotiated power-ups.

4-Pair, Dual-Trace Waveform Plotting

Given the Tcl/Tk 8.6 installation, PSA Interactive and PowerShell Wish will automatically begin to render dual plots of voltages and currents where appropriate.



PSA 5.0.01 also provides numerous minor enhancements and bug fixes over the PSA 5.0.00 release and is a recommended update to all customers of PSA / PSL / PVA instruments.

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Access to Upcoming 4-Pair PSE Conformance Test Suite

Beginning with PSA 5.1 software, PSA-3000 instruments may be licensed to support the future 4-Pair PSE Conformance Test Suite. This will allow earlier adopters and Beta site customers to start working with this test suite on their 802.3bt Type-3 (4-Pair) and Type-4 PSE's.

Access to Live PD Emulation and Multi-Port Test Suite for 2-Pair Type-3 PSE's

In PSA Interactive 5.0, PSE's declared as Type-3, 2-Pair can gain access to the PSE Conformance Test, Live PD Emulation, and Multi-Port Test Suite menus to support Live PD Emulation (emulating Type-1 and Type-2 PD's and Multi-Port Testing, also emulating Type-1 and Type-2 PD's).

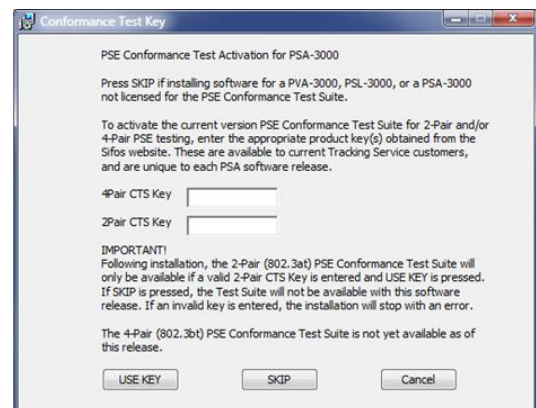
PSE Conformance Test Suite Tracking Service

When installing 5.1.00 software, customers who are licensed for the 2-Pair (formerly 802.3at) PSE Conformance Test Suite and are active on Conformance Test Suite Tracking Service must enter a product key in order to retain the PSE Conformance Test Suite after the software update.

The key code to use for the PSA **5.1.00** release has been revised and must be acquired from the Sifos Product Download pages, accessible to active Tracking Service customers.

If the PSE Conformance Test Suite Product Key is not entered, PSA software will be installed but will not be able to run the PSE Conformance Test Suite *regardless of instrument license status*. Customers who need to run PSE Conformance Test Suite but are not active on Tracking Service will have the option to **CANCEL** the software update during installation.

The PSA 5.1.00 software installer will also accept a Product Key for the future 802.3bt **4-Pair** PSE Conformance Test Suite. However, this key is not yet published to the Sifos website.



New PSA 5.0.00 Installer Dialog

Linux installations of the PSE Conformance Test Suite will also work differently as described in the PSA 5.0 installation instructions for Linux.

PSA 5.0.00 Enhancements

Software Entity	Impact	Feature
PSA Interactive 5.0	Important	PSE Conf. Test Tab Menu: Menu will now open for Type-3, 2-Pair PSE's. PSE's must be properly described in the PSE tab menu as BT Type-3 with ALT A or ALT B selected as the powered pairs. The Conformance Test menu will show the PSE Type that will then govern both testing and reporting (Type-1 at, Type-2 at, or Type-3 bt). EA Cert Test is not supported for Type-3.
	Important	PSE Live PD Emulation and PSE Multi-Port Test Suite menus will also open for Type-3, 2-Pair PSE's and support testing.

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Software Entity	Impact	Feature
	Moderate	PSA Interactive features adapted for Tk 8.6. PSA Interactive will still function as before with Tcl/Tk 8.4, however, Tcl/Tk 8.6 is recommended.
	Moderate	In Power Up tab menu, modified the Min. Hold and Max. Drop currents to be slightly outside the specification I_{Hold} range to allow for PSE's that may be using borderline criteria.
One-Click Waveforms (PSA Interactive 5.0)	Important	Many of the standard waveforms that produce two pairset voltage or current traces will appear on a single graph assuming Tcl/Tk 8.6 was installed. Those graphs may then be exported to a single Excel trace template.
	Important	Detect Waveform command, psa_detect_wfm , modified in several areas: <ul style="list-style-type: none"> • Accepts -add argument so that posted waveforms are not erased • Enhanced waveform capture and processing to improve certain timing measurements from PSE's that are slower to classify and power • Apply simultaneous pairset connections (vs 20msec latency) for Connection Check waveform • Modified to allow capacitive signature emulation on a single pairset of a Dual Signature PD emulation • Modified to allow invalid Rdet signature configurations to a single pairset of a Dual Signature PD emulation • Refined Connection Check waveform processing to discern connection check durations down to 5 or 6 msec • Other processing changes specific to Sifos internal usages for PSE conformance test
	Moderate	Class Waveform command, psa_class_wfm , modified in several areas: <ul style="list-style-type: none"> • Ability to automatically produce higher time resolution from PSE's that take between 2 and 6 seconds to apply power • Modified to enable the 4-pair class_v test to assess voltage extremes based on class signature current extremes • Modified to control pairset power draw during dual signature emulations to assure that both pairsets complete classification

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Software Entity	Impact	Feature
PowerShell PSA 5.0	Important	PowerShell PSA (and PSA Interactive) have the ability to automatically toggle between the 2-Pair PSE Conformance Test Suite and the (future) 4-Pair PSE Conformance Test Suite. This background “toggling” is effected by programming the 4-Pair state of one or more test ports, by connecting to PSA instruments that may be in an exclusive 4-pair state, and by loading PSE Attribute files specify whether the PSE is 2-Pair or 4-Pair powering. NOTE: Under PSA 5.1 software, only ONE of the conformance test suites, (2-Pair or 4-Pair) is present at any one time.
	Important	The psa_trace command is extended to produce either one or two waveforms, support longer waveform titles, and add legends for each plotted waveform. Further, dual waveforms can be exported to Excel.
	Moderate	The 802.3bt Power-Up Emulation command power_bt was enhanced to: <ul style="list-style-type: none"> • Tolerate PSE’s that switch from 2-pair powering to 4-pair powering during an LLDP negotiation • Add 2mA mark load for PD Class 1, 2, and 3 power-ups in order to better emulate Type-3 PD’s and improve timing measurements derived from capture traces • Added optional 8 second trace aperture • Enhanced to support higher resolution traces when PSE’s take between 2 and 6 seconds to classify or to power-up (requires test blade firmware 4.14 or later)
	Moderate	The three trace commands, vdctrace , idctrace , and pwruptrace all accept a new extended aperture of 400mx (400 msec, 1024 point trace).
	Minor	Added new psa_speed command that will set the PSA-3000 backplane communications speed to either SLOW or to the new FAST setting (57.6Kbaud). PSA software will default to FAST setting if the PSA controller blade has 3.18 or newer firmware.
PSE Conformance Test Suite	Important	Changes performed to class_v test to adapt to 2-Pair 802.3bt Type-3 PSE’s that use LCE first event, 3-event classification, and possibly class probing.
	Important	Changes performed to class_time test to adapt to 2-Pair 802.3bt Type-3 PSE’s that use LCE first event, 3-event classification, and possibly class probing. Test limits for several parameters also adapt.

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Software Entity	Impact	Feature
	Moderate	Changes performed to class_err test to adapt to PSE's that respond to uneven classification by either: <ul style="list-style-type: none"> Producing a single event classification Discontinuing classification until the PD is disconnected
	Important	Changes to class_lldp test to verify that Type-3, 2-pair PSE's respond to BOTH 802.3at and 802.3bt TLV's. Parameters and associated test limits added to reporting.
	Moderate	Modified the pwrn_pwr cap and pwrn_overld tests to always use Rchan = 12.5 ohms in computing Pclass/Icon given Type-3 PSE's.
	Moderate	The mpe_dc_valid test set up to adapt to Tmps criteria for 802.3at versus low power MPS Type-3 PSE's. Reporting limits adjusted accordingly.
	Moderate	The mpe_dc_pwr dn test up to adapt to Tmpdo criteria for 802.3at versus low power MPS Type-3 PSE's. Reporting limits adjusted accordingly.
	Minor	Modified pwrup_inrush test so that a PSE that takes exactly 1 msec to get into current limit will produce consistent passing or failing result from the Init_Inrush and Max_Inrush_c* test parameters.
PowerShell PSA LLDP Utilities	Moderate	Modified psa_lldp_wait to search for EITHER 802.3at or 802.3bt TLV's independently
PVA Interactive 5.0	Moderate	Adapted to work with either Tcl/Tk 8.6 or 8.4 versions.

PSA 5.0.00 Bug Fixes

Software Entity	Impact	Feature
PSA Interactive 5.0	Moderate	Power Up menu solves a potential issue with setting target load in cases where a PSE unexpected powers with just 2 pairs.
	Moderate	Solved issue in Power Up menu where a typed-in Powered Load setting would not update the slider position when the Connect PD was pressed. Similarly, the LLDP request would not be revised to a typed-in value when Connect PD was pressed.
One-Click Waveforms (PSA Interactive 5.0)	Minor	Corrected small vulnerability in Class waveform that occurred if a PSE power-up occurred at a specific time point during trace capture.
	Minor	Corrected problem that led to failed power-ups with Class 1D (dual) emulation in the Disconnect Shutdown waveform.

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Software Entity	Impact	Feature
PowerShell PSA 5.0	Moderate	The 802.3bt Power-Up Emulation command power_bt was enhanced to: <ul style="list-style-type: none"> Solve issue with actual load power setting given Dual Signature LLDP power-ups Corrected an issue where a Class 0 power-up done using PSL-3000 could produce an MPS shutdown shortly after power-up.
	Minor	Fixed a bug in psa_auto_port and psa_pse where test blade 4-pair state was not always processed properly.
	Minor	Firmware update commands psa_flash and psa_update_fw modified to prevent possible problems with 4-pair connections and backplane speed during firmware updates.
PSE Conformance Test Suite	Minor	Fixed issue in class_v test given a c 3 argument were signature current was set too low. This does not affect normal PSE conformance testing that uses Class 0 or Class 4 emulation but not Class 3.

PSA/PVA Firmware Versions

PSA 5.1 software requires certain minimum versions of PSA/PSL test port firmware. The following versions are the current versions for each product. Sifos recommends updating firmware to these.

PSA-3000 Controller: ver 3.18	PSA-3202, PSL-3202 , PSA-3402:
PSA-3402 Controller: ver 3.18	Test Port ver 4.14 , ALC ver 16
PSA/PSL-3102 or PSA-3002	PVA-3102
Test Port ver 3.2A	Test Port ver 3.0B

Important! **PSA-3000 Controller** firmware **3.18** or later is required in order for PSA 5.1 software to speed up host-to-test-port communications. Without this firmware version, there will be no change in communications bandwidth.

Important! The 4-Pair PSE Conformance Test Suite may require PSA-3202 firmware version **4.14**. This version implements a trace capture feature that enables better resolution of PSE classification timing.

Important! PSx-**3202** firmware **4.14** and PSx-**3102** firmware **3.2A** addresses an extremely subtle and rare problem that develops when running PSE conformance tests with **LLDP power-granting PSE's**. The problem can manifest as either an I/O timeout to the PSA instrument or as an LLDP LAN interface that fails to auto-negotiate with the PSE port under test. Only PSx-3202 and PSx-3102 **hardware versions 8** and **9** are impacted by this problem.

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PSA-3202/PSL-3202/PSA-3402 ALC Version 16 Update

NOTE! The following information was included in earlier PSA 5.0.00 and PSA 5.0.01 Release Notes.

The ALC firmware within a PSA-3202/PSL-3202/PSA-3402 is a vital element affecting the instrument's ability to reliably emulate all **802.3bt** PD's and to test **802.3bt** PSE's under a wide variety of conditions. The current version of ALC firmware is **version 16**. Any instruments that are used for 802.3bt PSE testing either now or in the future must be updated to this version.

To examine current ALC firmware version, simply open **PowerShell Tcl** or **Wish** and execute the command:

psa_config -alc

ALC Update Instructions

Updating any PSA/PSL test instrument to ALC version 16 is a very simple task. However, it should be performed when the instrument is not needed for a while as it may take from 3 to 10 minutes PER TEST PORT to complete. It is recommended to simply run this update overnight from a PC that is not busy performing other tasks.

To perform the ALC version 16 update to all PSA/PSL-3202 test ports:

Obtain the .zip file **ALCv16.zip** from the Sifos Installation CD Firmware directory or from the PSA/PSL-3000 download page at www.sifos.com. Unzip (install) the 3 files in **ALCv16.zip** to:

PC OS	PSA Software Release	Installation Directory
Windows 10, 8, 7, Vista	PSA 4.2	C:\Users\Public\Sifos\PSA1200\Contrib\
	PSA 5.0	C:\Users\Public\Sifos\PSA3000\Contrib\
Windows Xp	PSA 4.2	C:\Program Files\Sifos\PSA1200\Contrib\
	PSA 5.0	C:\Program Files\Sifos\PSA3000\Contrib\

Open PowerShell (Wish or Tcl), connect to instrument that will be updated, and execute:

alc_updater_16

When the update is completed, look for the indication:

alc_updater_16: UPDATES COMPLETED !!!!

Ports ** Updated Successfully!**