

## PSA 5.3.01 Release Notes

The PSA **5.3.01** Release Note is applicable to the PSA-3000 and PVA-3000 family of test instruments.

### Highlights

The 5.3.01 release consists largely of a potpourri of changes involving many of the products in the PSA/PVA-3000 product lines. PSA 5.3.01 is highly recommended to those running PSE Conformance Tests, particularly the 4-Pair PSE Conformance Test Suite.

With the PSA 5.3.01 release, Sifos is releasing a firmware upgrade, version **4.19**, to PSA-3202 / PSL-3202 test blades and to the PSA-3402 compact instrument. This firmware upgrade enables a new measurement capability affecting the 4-Pair PSE Conformance Test Suite by enabling more efficient and accurate analyses of classification and power-up timing behaviors. Version 4.19 firmware is therefore highly recommended.

Though not externally observable, PSA 5.3.01 lays the groundwork for the upcoming **N-Pair Live PD Emulation** capability that will be supported in the new **PSL-3424** Programmable Load instrument. This powerful new capability should become available in the next PSA 5.3 sub-release.

### PSE Conformance Test Suite Tracking Service

When installing PSA 5.3.01 software, customers who are licensed for the **2-Pair** PSE Conformance Test Suite and are active on Conformance Test Suite Tracking Service must enter the **2Pair CTS Key** in order to retain the PSE Conformance Test Suite after the software update. Customers who are licensed for the **4-Pair** test suite must enter the **4Pair CTS Key** to maintain that test suite.

Both Conformance Test Product Keys are revised relative to earlier software releases and may be obtained by registering / logging into the Sifos website for product downloads. Customers who are active on Conformance Test Suite Tracking Service and have accounts at [www.sifos.com](http://www.sifos.com) may obtain product keys from the **Product Download** area.

### EA Gen1 and Gen2 Certification Testing

PSA software version **5.2.05** was EA certified for 1<sup>st</sup> party Gen1 (802.3at) and Gen2 (802.3bt) certification testing. Sifos will seek EA re-certification for PSE Conformance Testing under this PSA **5.3.01** software version including both Gen1 and Gen2. That activity will start before the end of 2022.

### PSA 5.3.01 Enhancements

Software Entity	Impact	Feature
2-Pair PSE Conformance Test Suite	Minor	<b>class_time</b> now reports single event class timing as <b>Tpdc</b> rather than <b>Tcle1</b> when emulating Type-1 PD's while testing Type-2 PSE's.
	Minor	<b>class_ldap</b> modified to better assure that attempted 10Base-T links are properly assessed overcoming possible Interop problem with certain multi-gig PHY's in PSE's.
	Minor	Sequencer modified to assure non-default reporting directories entered in PSA Interactive PSE tab menu are created before producing files.

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Software Entity	Impact	Feature
	Minor	Standard report updated to better explain the Interop Index purpose and interpretation. Reduced Interop weight of <code>llim_max_N</code> parameters in <code>pwrn_maxi</code> .
4-Pair PSE Conformance Test Suite	Important	<code>class_v</code> and <code>class_time</code> tests both utilize the standard <b>Classification Waveform</b> that has been modified to use the new 4-Pair power-up post-triggered waveform for assuring capture of final cycle classification timing regardless of PSE time to power or count of detection/class cycles prior to power-up. This feature is available with version 4.19 firmware. The classification waveform analyzer utilized for waveform analysis is adapted to handle small differences in the captured waveforms and to take advantage of the generally better time and voltage resolution available with those waveforms. PSE's that are very slow to power or power with random numbers of preceding detection/classification cycles will especially benefit from faster testing and more resolved parameters.
	Important	The <code>pwrup_time</code> measurement of <b>Tpon</b> (single and dual signature) is also modified to take advantage of the 4-Pair post triggered power-up trace available with PSA-3202 version 4.19 firmware. The same benefits described above for <code>class_v</code> and <code>class_time</code> tests also apply to <b>Tpon</b> measurements in <code>pwrup_time</code> .
	Important	The <code>pwrn_pwrcap</code> test was adjusted to better "center" the power scan range to <b>Icon_2p</b> when testing PSE's for power capacity while emulating Dual Signature PD's. Prior versions of the test did not tolerate PSE's that dropped output voltage rapidly with load current causing the scan range to be suboptimal. Many PSE's will now report slightly higher power capacities when powering Dual Class 4 and 5 PD's.
	Moderate	A number of changes went in the Detection Step waveform analysis utilities to support adaptations to a couple of unique PSE behaviors not previously seen. Improved robustness in discriminating detection and connection check signaling edges.
	Moderate	The Max Assigned Class finder utility is enhanced to more reliably resolve maximum assigned class from an LLDP-granting PSE.
	Moderate	The <code>class_lldp</code> and <code>class_lldp2</code> tests were modified to process the PSE Max Available Power field differently. The test expects the this value to be constant and to be consistent with the maximum assigned class that the PSE will provide. Allowance for extended power up to 99.9W is only provided to Type-4 PSE's. The <code>PSE_Max_Pwr_**</code> parameter is now reported as a code with values -1, 0, 1, or 2 reflecting its behavior where -1 is invalid

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		(fail), 0 is too low (fail), 1 is proper to the PSE type and max assigned class (pass), and 2 is higher than max assigned class (info). Both tests are also adapted to better assure that attempted 10Base-T links are properly assessed overcoming possible Interop problem with certain multi-gig PHY's in PSE's.																																																																																																																																										
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	Minor	<b>pwrup_time</b> enhanced to be more robust in selecting voltage thresholds for the <b>Trise</b> measurement and in overcoming potential large leading edge classification voltage spikes that could interfere with <b>Trise</b> measurements. Test also enhanced to process <b>Tpon</b> measurements with an aberrant PSE that fails to produce final mark events.																																																																																																																																										
	Minor	The standard 4-Pair PSE Conformance test report updated to process the revised PSE_Max_Pwr_** parameters and to add Safety and Interop weightings to the <b>det_time</b> test.																																																																																																																																										
PHY Performance Test Suite	Moderate	<p>The receiver tests, <b>pva_rx_10</b>, <b>pva_rx_100</b>, and <b>pva_rx_1000</b> were enhanced to allow user specification of '0dB' level Noise and Jitter impairments overriding the default levels that are considerably higher and targeted at current generation state-of-the-art 10/100/1000 transceivers. The test sequencer is enhanced to optionally pass these configurations to the individual tests. 0 dB impairment levels are the values written into the respective 802.3 clauses (14, 25, and 40) for alien crosstalk noise and jitter. When the test suite is run with these "minimum" impairment levels, the standard PHY Performance Test Suite will report this fact (see below). This feature allows users to run testing using 802.3 specification tolerances rather than current state-of-the-art values.</p> <table border="1"> <thead> <tr> <th colspan="6">Receiver Tests Maximum Impairment</th> </tr> <tr> <th colspan="2">10Base-T MDI Line Loss and Link_Ck</th> <th colspan="2">100Base-Tx MDI Line Loss and Link_Mon</th> <th colspan="2">1000Base-T MASTER: Line Loss and Link_Mon</th> </tr> </thead> <tbody> <tr> <td>Slew_Rate=</td> <td>5 ns -2.7dB LPT</td> <td>Slew_Rate=</td> <td>5 ns -2.7dB 100%</td> <td>Slew_Rate=</td> <td>3.5 ns -1.9dB 100%</td> </tr> <tr> <td>Tx Offset=</td> <td>-50 ppm LPT</td> <td>Tx Offset=</td> <td>-50 ppm 100%</td> <td>Slew_Rate=</td> <td>5 ns -2.7dB 100%</td> </tr> <tr> <td>Tx Offset=</td> <td>50 ppm LPT</td> <td>Tx Offset=</td> <td>50 ppm 100%</td> <td>Noise</td> <td>-1.5 dB(40mV) 100%</td> </tr> <tr> <td>Tx Offset=</td> <td>-100 ppm LPT</td> <td>Tx Offset=</td> <td>-100 ppm 100%</td> <td>Noise</td> <td>1.5 dB(40mV) 100%</td> </tr> <tr> <td>Tx 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	Minor	Refined the <b>pva_stability_check</b> utilized by the Basic Capabilities test to more reliably discriminate 10/100/1000 ports that have poor stability when linking at 1000Base-T.																																																																																																																																										

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2-Pair Multi-Port Test Suite	Minor	Corrected a vulnerability in <code>mp_pwrup_time</code> where an LLDP granting PSE that fails to grant the expected number of ports could cause average power-up time to report higher than maximum power-up time.
PSL-34 Quick Test	Minor	Enhanced the Quick Test application for the PSL-3424 to respond directly with proper indication when powering ports that are not 802.3 (802.3at or 802.3bt) types of PSE ports.
PSA Interactive	Moderate	Numerous revisions made to support upcoming N-Pair Live PD Emulation available for the PSL-3424 Programmable Load and to lay the groundwork for a new Live Emulation tab menu covering combinations of 2-Pair and 4-Pair PSE ports. Inner workings of the Multi-Port Resource Configuration menus were revised to support the upcoming N-Pair Live PD Emulation.
	Minor	Corrected some label formatting in the Slot-Port panel menu.
	Minor	Revision to the Quick Test drop down menu to improve formatting.
	Minor	LLDP protocol traces enhanced to more frequently indicate powering status to Power LED's in menu and two work better with 802.3bt LLDP traces when 802.3at TLV's are interlaced with 802.3bt TLV's. The LLDP power-up trace is also adapted to better assure that attempted 10Base-T links are properly assessed overcoming possible Interop problem with certain multi-gig PHY's in PSE's.
	Minor	Standard LLDP protocol trace report enhanced to flag a failure if the PSE alters the Max Available Power TLV (field) during the course of the protocol capture. This should be a constant value.
	Minor	Quick Test menu revised to allow as few as 2 ports to be tested when using a PSL-3424 Programmable Load.
PVA Interactive	Moderate	The PHY Test Suite tab menu is enhanced to support 3 options for Receiver Test Noise/Jitter impairment levels: Default (State-of-the_Art), Minimum (0 dB), and Reduced (-3dB below Default levels). Users may select one of these 3 settings before sequencing the test suite.
PowerShell PSA	Important	PowerShell PSA was extended to swap out between 2-Pair and future N-Pair Multi-Port Suites (Live PD Emulation, Multi-Port Test Suite) much like it does presently with the 2-Pair and 4-Pair PSE Conformance Test Suites. The 2-Pair Multi-Port Suite is loaded when connected to PSA/PSL-3000 instruments and the N-Pair Multi-Port Suite will be loaded when connected to PSL-3424 Programmable Loads.
	Important	The standard Classification Waveform ( <code>psa_class_wfm</code> ) for 4-Pair PSE's was significantly enhanced to take advantage of the new 4-Pair Post-Triggered Power-Up trace meter available from

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Software Entity	Impact	Feature
		PSA-3202 ports running firmware version 4.19. See 4-Pair Test Suite <a href="#">class_v/class_time</a> test above.
	Important	Implemented the 4-Pair Power-Up Post Trigger Voltage trace ( <a href="#">pwruptrace_4p</a> ) meter for use with the <a href="#">psa_class_wfm</a> and the 4-Pair PSE Conformance Test Suite. This feature uses enhancements in PSA-3202 firmware version 4.19 and enables faster recovery of time resolved voltage traces capturing activity immediately prior to PSE power-ups.
	Moderate	Various enhancements to the <a href="#">psa_flash</a> command that updates test port firmware in order to overcome some vulnerabilities that arose with updated PSL-3424 firmware. If a test port firmware recovery becomes necessary with the PSL-3424, additional features were added into PowerShell PSA to facilitate that recovery.
	Minor	With PSL-3424, <a href="#">pstatus</a> enhanced to better process a case where a proprietary, non-802.3bt PSE gets powered and is not recognizable as 802.3bt features.
	Minor	<a href="#">power_pse</a> (PSL-3424) modified to allow <i>either</i> AT or BT LLDP TLV's to be present in order to start an BT LLDP negotiation.
	Minor	<a href="#">psa_auto_port</a> enhanced to recognize a connection to certain proprietary 4-pair PSE's and prevent false interpretation.

### PSA 5.3.00 Bug Fixes

Software Entity	Impact	Feature
4-Pair PSE Conformance Test Suite	Minor	Corrected logic problem in the 4-Pair PSE Conformance standard report where limit logic affecting <a href="#">pwron_maxi</a> (Tlim) and <a href="#">pwron_overld</a> was utilizing Type-4 limits in certain cases where Type-3 limits should have been applied. This affected both the standard 4-Pair test suite report and the EA Gen2 standard test report.
PSA Interactive	Minor	Corrected problem in the LLDP tab menu where Type-3/4 controls would not properly activate for a PSE that was 4-Pair Type-3/4 and declared to support Autoclass.

### PSA/PVA Firmware Versions

PSA 5.3 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 3.1C	PSA-3202, PSL-3202 , PSA-3402: Test Port ver 4.19, ALC ver 19	PSL-3424 Test Port: ver 5.02
PSA-3402 Controller: ver 3.1C		
PSA-3424 Controller: ver 3.1C		
PSA-3002 Controller: ver 3.14 <sup>1</sup>		

## PSA 5.3.01 Release Notes

PSA/PSL-3102 or PSA-3002 Test Port ver <b>3.2B</b>	PVA-3102 Test Port ver <b>3.0B</b>	
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PSA-3202 test port firmware is updated to version **4.19** for this release. This update is *strongly recommended* to any users running the 4-Pair PSE Conformance Test suite. Firmware is available from [www.sifos.com](http://www.sifos.com).

1 PVA-3002 compact PhyView Analyzers can run firmware versions later than 3.14 if the host software is version 5.3.00 or later. If software is before version 5.3.00, then controller firmware 3.14 should be installed.

### ***PSA-3202/PSL-3202/PSA-3402 ALC Version 19 Update***

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 19** that was introduced with the PSA **5.2.03** release. Any instruments that are used for 802.3bt PSE testing either now or in the future should be updated to this version if they have not already had that update.

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

```
psa_config -alc
```

### ***ALC Version 19 Update Instructions***

Updating any PSA/PSL test instrument to ALC version 19 is a very simple task. However, it should be performed when the instrument is not needed for a while as it will consume 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 19 update to all PSA/PSL-3202 test ports:

After installing PSA version 5.2.03 or 5.2.04 software, open PowerShell (Wish or Tcl), connect to instrument that will be updated, and execute:

```
alc_updater_19
```

When the update is completed, look for the indication:

```
alc_updater_19: UPDATES COMPLETED !!!!
```

```
Ports **** Updated Successfully!
```