

Release Notes CAS4 SDK

1 History

SW Version	Changes	Date
V4.10.2	Minor feature / Bugfix release	04.09.2020
V4.10.1	Minor feature release	08.05.2020
V4.10.0	Major Feature / Bugfix release	09.04.2020
V4.9.4	Minor Feature / Bugfix release	05.09.2019
V4.9.2	Minor Feature / Bugfix release	07.11.2018
V4.9	Minor feature release	23.03.2018
V4.8.2	Bugfix-Release	14.11.2017
V4.8.1	*Bugfix-Release	05.07.2017
V4.8	Minor feature release	28.06.2017
V4.7.2	*Bugfix-Release	13.09.2017
V4.7.1	*Bugfix-Release	09.05.2017
V4.7	Minor feature release	23.02.2017

* not officially released; fixes used in following releases if not stated otherwise

2 Change notes

Version	Modification Type	Description
4.10.2	New Feature	New PeakDiffWidth parameter which is used for differentiation when calculation peak wavelength.
4.10.2	New Feature	New Feature: new casCalculateLambdaDom API
4.10.2	New Feature	New feature: intermediate results for CRI calculation are dependent on new mpidColormetricType (and not available for SWPColormetric and criDIN6169)
4.10.2	New Feature	New feature: mpidColormetricType supporting cmtSWPColormetric
4.10.2	New Feature	New feature: ISD files now contain the InterfaceType
4.10.2	Improvement	Improved documentation regarding error handling, esp. CheckError usage
4.10.2	Improvement	Documentation updated to describe the new function "casCalculateLambdaDom()" and mark legacy "cmXYToDominantWavelength()" as deprecated.

4.10.2	Fix	Bugfix: MAS40 Interface was missing from CASAccessoryAddins in 4.10.0 and 4.10.1
4.10.2	Fix	Bugfix: casGetWidth did not calculate correct width when ColormetricStart/Stop restricted range so that only one pixel value crossed the width-level.
4.10.2	Fix	Bugfix: PCI(e) card enumeration exception which made both PCI and PCIe interfaces disappear on some PCs
4.10.2	Fix	Bugfix: fix incorrect DCCCD Temp after paMeasureParamSetsDC
4.10.2	Fix	Bugfix: ecvDistance was undefined or NAN for spectra where CCT could not be calculated
4.10.2	Fix	Bugfix: casCalculateCRI with CIE CRI did not return ErrorCRI for spectra with CCT = 0
4.10.2	Fix	Bugfix: fixed memory leak when sending CAS125 parameter to device
4.10.2	Fix	casGetWidth() result with cmtSWPColormetric differs from SpecWinPro result
4.10.1	New Feature	New parameter mpidColormetricPeakDiffWidth for manual adjustment of the spectral width of the Peak Wavelength algorithm
4.10.1	Fix	casLoadTest fails with CAS140D ethernet even if present and initialized
4.10.1	Improvement	Extended doc for DC Array
4.10.1	Improvement	mpidAutoRangeMaxIntTime now float
4.10.0	Fix	MultiTrack files for CAS140D Eth/PCIe and CAS125 were broken
4.10.0	Fix	IR CAS could measure with IntTime < IntTimeMin because of BlindTime
4.10.0	New Feature	New parameters mpidFlashDuration, dpidFlashDurationMin and tcoFlashDuration for CAS125 support
4.10.0	Improvement	Faster AutoRange for IR CAS
4.10.0	Improvement	Documentation: Several enhancements in sections for DC, ParamSets, AutoRange, Device Discovery, Triggered Measurements, Interface Types, etc.
4.10.0	New Feature	New device parameter dpidCheckReferenceSpectrumFile to check whether a given ACS reference spectrum can be compared to spectra of this CASID
4.10.0	New Feature	New device parameter dpidTriggerDelayTimeMin can now be queried to provide info on earliest possible measurement start
4.10.0	Fix	PCIe/140D Ethernet did not calculate mpidMultiTrackAcqTime
4.10.0	Fix	casDLLTest.exe x64 crashed on some systems when TLCl or TM30 DLL was not present
4.10.0	Improvement	CAS140D CalibUp/Download increased size to 6MB
4.10.0	Improvement	Temperatures values provided by DLL rounded to 2 digits
4.10.0	New Feature	PCIe measurements can now be aborted

4.10.0	Improvement	CAS audit last pass/fail dates are now stored in UTC format
4.10.0	Improvement	MultiTrack track start aka mpidCMTTrackStart is now a float
4.10.0	New Feature	New coCanMultiTrackSensorTemp (CAS125) MultiTrack SensorTemperature support via mpidCMTSensorTemp in spectra metadata
4.10.0	Fix	Re-index dpidCurrentParamSet was incorrect after deleting a ParamSet with index below current index resulting in "wrong" ParamSet values
4.10.0	New Feature	MinCCDTemperature from INI; adjusted error text for ErrorCCDTemperatureFail to cover new min temperature
4.10.0	New Feature	CASDLLTest supports trigger delay
4.10.0	New Feature	CASDLLTest supports flash type
4.10.0	New Feature	ParamSetEditor now contained with CASDLLTest
4.10.0	Fix	ErrorConfigUpToDate (-70) now only returned if device/identkey actually contains files not if key is empty
4.10.0	New Feature	New measurement parameter mpidMeasured which only returns true (1), when a paramset was successfully measured
4.10.0	Improvement New Feature	CASDLLTest no longer automatically queries and operates on mpidCurrentDensityFilter to avoid long waiting times; New "?" and "!" buttons added for manually querying or setting the filter
4.10.0	New Feature	New paMeasureParamSets action to measure a defined range of parameter sets
4.10.0	New Feature	New measurement parameter mpidAveragingOnDevice for CAS125
4.10.0	Improvement	IntTimeMin now a float, Min/Max and DC Array IntTimes from INI can now also be a float
4.10.0	New Feature	Debug logging can now be enabled with entry in CAS4.ini
4.10.0	New Feature	mpidTriggerDelayTime time now float, new dpidTriggerDelayResolution
4.10.0	New Feature	mpidFlashDelayTime time now float new dpidFlashDelayResolution, only supported by PCI
4.10.0	New Feature	New casPerformActionEx() method supporting two additional integer parameter for new/future actions, (e.g. AParam1=Start-ParamSet, AParam2=Stop-ParamSet for CAS125 recipe mode); deprecated casPerformAction() !
4.10.0	New Feature	paSearchForDevices can now search for a specific interface only (AParam1 = InterfaceType) and can also cause a hard reset (AParam2 = 1) to fix problems with CAS after a FW upload on console apps like Python
4.10.0	New Feature	CAS4.h now defines local cas_wchar for W-API methods using UCS-2 strings; aliased to wchar_t for MSVC, UniChar on macOS and unsigned short for all others; adapted VC2013 demo
4.10.0	Fix	PCI: Very first temperature measurement was wrong, so early uncooled measurement was not detected;
4.10.0	New Feature	MultiTrack measurements can now be properly aborted
4.9.4	New Feature	Included PCIe driver signed with new signature for Win10 systems.
4.9.4	Improvement	Improved documentation on RelSaturation and AutoRange topics in manual.
4.9.4	Fix	Sporadic error -2140 with USB interface in triggered mode when changing integration time between measurements

4.9.4	Fix	Sporadic Blue Screen crash on Windows 64 Bit and PCI interface.
4.9.4	New Feature	Support for TM-30 in VC2013/C# example application
4.9.4	New Feature	TLCI and TM-30 support in CASDLLTest.exe
4.9.4	Fix	tcoGetFlipFlopState never set due to bug in flag administration for dpidTriggerCapabilities
4.9.4	Fix	Fixed a problem with terminating LabView applications using devices with ethernet interfaces.
4.9.2	Fix	Corrected documentation: casGetDeviceTypeOption has no way to check for errors; neither return value nor casCheckError because the latter would need a CASID
4.9.2	Fix	Corrected documentation: tcoTriggerOnlyWhenReady does not (or no longer) indicate that toAcceptOnlyWhenReady is supported, but rather that toAcceptOnlyWhenReady can be changed; also updated prerequisites for some trigger sequences
4.9.2	Fix	Using spectrometer CAS140B PCI in combination with TOP200 always caused a serial number mismatch
4.9.2	New Feature	New CAS_TLCI DLL supported in CSharp Demo as IFDEF notation
4.9.2	Fix	Corrected documentation: for some calls (i.e. paSearchForDevices) it is not necessary to use a valid CASID
4.9.2	Fix	CAS140D with Ethernet interface did not support switching status LED off during measurement
4.9.2	Fix	Introduced new error code ErrorCommunicationTimeout (-73): Raised when second application disturbs a spectrometer with Ethernet interface whilst measuring continuously.
4.9.2	Fix	Corrected documentation: Device parameter dpidDebugXXX can be used for invalid CASIDs as well
4.9.2	New Feature	CASDLLTest.exe now enables usage of parameter paSearchForDevices in Extras menu (Search for Devices)
4.9.2	Fix	If spectrometer with Ethernet interface cannot be found now error code ErrorAdrControl (-14) is raised always instead of sometimes ErrorUnknown (-1)
4.9.2	Fix	Fixed several bugs with finding spectrometer with Ethernet interface, In-Use devices, handling of more than one device on the same Ethernet adapter or several adapters
4.9.2	Fix	Since NVIS cluster does not support new AutoRange, it now raises an ErrorFeatureNotSupported (-68) in paAutoRangeFindParameter
4.9.2	New Feature	New device parameter dpidCalibDate returns calibration date or as a fallback the ISC file date
4.9.2	Fix	PCIe interface driver version 1.0.4.3 included and required
4.9.2	Fix	On some computers, CAS 140CT USB spectrometers always returned error code ErrorNoCommunication (-63) when measuring
4.9.2	Fix	Spectrometer with PCI interface showed 9ms integration time after any measurement with different integration time (fixes bug from 4.9 beta release)
4.9.2	Fix	To avoid a PCIe driver related blue screen the CAS DLL now requires PCIe driver version 1.0.4.1 or higher
4.9	Fix	Avoid sporadic errors when reading I2C state of CAS USB V1 by no longer using OEMODE_I2C_ExtReadBytes

4.9	Fix	Disconnecting a spectrometer with USB interface during DC measurement sometimes resulted in ErrorUnknown (-1) instead of ErrorAdrControl (-14).
4.9	Fix	Downloading calibrations from CAS140D with PCIe could sometimes cause ErrorUnknown (-1) instead of ErrorDeviceFileChecksum (-60).
4.9	Improved	DebugLogLevelAllMethodCalls no longer logs intensive calls like casGetData. Use DebugLogLevelAllMethodCalls+1 to get even those
4.9	Fix	I2C clock for CAS140D reduced to 30kHz for PCIe interface and 100kHz for Ethernet interface in order to avoid problems
4.9	Fix	CAS140D and CAS140CT are using a fix I2C timeout of 10s, because current PCIe driver still resets I2C Bus when timeout is changed
4.9	Fix	CAS140D with Ethernet interface is using a fix I2C timeout of 1s
4.9	New Feature	CAS140D with Ethernet interface now supports TriggerDelay
4.9	Fix	If an error occurs during a DC array measurement, the incomplete array was used under some circumstances. Now dpidDCRemeasureReasons will stay non-zero
4.9	New Feature	New dpidTOPTYPE constant ttTOPLumiTOP
4.9	New Feature	New mpidIntTimeAlignPeriod to ensure that integration time (e.g. during a AutoRange measurement) is always a multiple of that period
4.9	New Feature	mpidIntegrationTime now accepts float values. Value will be rounded to the integration time resolution of the CAS upon measurement.
4.9	Fix	When measuring a DC array, an error might be caused, if one of the integration times of the array is out of the allowed range
4.9	New Feature	PCIe now has tcQueryHasData capability and actually returns HasData = True once the PCIe driver notify was received
4.9	New Feature	PCIe interface only returns tcQueryHasData capability if CPLD version >= 108 and DriverVersion >= 1041. Also included SysDriver V 1.0.4.1
4.9	Fix	Fixed crash when dpidParamSets was set to 0. Now all sets are cleared and a new one is added immediately.
4.9	Fix	PCIe interface now calls OEM_I2C_CheckState to detect I2C Busy state and cause a bus reset if addressing returns an error and if sending returns NotAck
4.9	New Feature	PCIe poor man's handshake uses GetDigitalOut to check whether the CAS is ready to receive a trigger; for use with CASMultiThreaded.dll et al.
4.9	Fix	If CAS140D does not contain calibrations ErrorNoFilesOnIdentKey (-64) is returned during dpidGetFilesFromDevice
4.9	New Feature	I2C clock frequencies can be adjusted per controller type (CT, D, B) via INI
4.9	Fix	When "clear" is passed with dpidStorePathOnDevice, the calibration files on the dongle/device will be erased
4.9	Fix	casGetShutter will now retry up to 6 times internally if shutter position is invalid
4.9	Fix	Crashed CAS140CT USB and CAS140D USB firmware resulted in instead of original error code like -2140 instead of ErrorAdrControl (-14)
4.9	New Feature	Measurements with CAS140CT with USB interface now can be

		aborted by dpidAbortWaitForTrigger
4.9	New Feature	Spectrometers with USB interface now use RawIO to transfer spectra
4.9	New Feature	Spectrometers with USB interface needs VR_INIT after TriggerTimeout
4.9	New Feature	IS Icon on Win64 systems for all device drivers was missing in device manager
4.9	Improved	Spectrometers with USB interface only sends VR_INIT if necessary
4.9	Improved	CAS140D with Ethernet interface only sends SDCTP_REQ_SCANINITIALIZE if necessary
4.9	New Feature	Saved ISD files can now contain stray light correction FileInfo condition, if a stray light correction is active
4.9	Fix	Fixed sample code in documentation for parameter sets
4.8.2	Fix	CAS140D defect pixel correction is erroneous
4.8.2	Fix	Loading controller configuration from 140CT with PCI-Interface could cause software hang
4.8.2	Fix	Fixed connection problems with PCIe-Interface and (multiple) spectrometer. When connecting a different CAS 140CT/D to PCIe-Interface during a software session, the new spectrometer was not recognized and serial mismatch error occurs
4.8.2	Fix	Controller configuration is missing after device with PCIe-Interface was switched off and access failed with ErrorAdrControl
4.8.2	Fix	Manual: Sequence diagrams were missing for CHM/HTML documentation
4.8.2	Fix	Manual: Sequences diagrams for triggered measurements were improved, incorrect reference numbers fixed, etc.
4.8.2	Fix	Manual: Correction for task "Density Filter": mpidNewDensityFilter defines filter for next measurement, not mpidDensityFilter
4.8.2	Fix	Manual: Correction of wavelength range of UVC rad. integral
4.8.2	Fix	For versions 4.7.2 and $\geq 4.8.2$: Transmissions now only need to contain at least 3 datapoints (not 4)
4.8.2	Fix	For versions 4.7.2 and $\geq 4.8.2$: paUpdateCompleteCalibration (called explicitly with casPerformAction or internally when changing CalibrationParts and others) now reloads ISC file so it is resampled to modified X-Vector
4.8.2	Fix	For versions 4.7.2 and $\geq 4.8.2$: dpidExtraTransmissionFileInfo included transmission nodes that were loaded but not used
4.8.1	Fix	Averages for PCIe-Interface limited to 32000
4.8.1	Improved	C# Demo now can download calibration files from device before initializing
4.8.1	Improved	Only in 4.8.1 – not yet used in later releases: Spectrometer with USB-Interface only sends VR_INIT if necessary, reduces cycle time 3-4ms
4.8.1	Improved	Only in 4.8.1 – not yet used in later releases: Spectrometer with Ethernet-Interface only sends SDCTP_REQ_SCANINITIALIZE if necessary, reduces cycle time 3-4ms

4.8	New Feature	Support of new array spectrometer CAS 140D with exchangeable interface USB, PCIe and Ethernet
4.8	New Feature	CAS 140CT with PCI interface can now use PCIe interface board
4.8	New Feature	Delphi demo application always updates <code>dpidConfigFileName</code> and <code>dpidCalibFileName</code> in order to recognize a change of file set
4.8	New Feature	Delphi demo application limits integration time to <code>dpidIntTimeMin</code> and <code>dpidIntTimeMax</code>
4.8	New Feature	Delphi and C# demo application demonstrates download of calibration- and configuration file from device
4.8	New Feature	CasDllTest.exe configuration dialog provides a button in order to download calibration- and configuration file from device
4.8	New Feature	New documentation task about downloading calibration files from spectrometer
4.8	New Feature	Default options for newly created CAS ID includes <code>coCheckCalibConfigSerials</code> and <code>coCheckConfigUpToDate</code>
4.8	New Feature	New trigger capabilities indicating whether ACQ and BusyState line polarity can be changed
4.8	New Feature	CASDLLTest.exe now supports setting BusyState and polarity just like ACQState
4.8	Fix	PCI Interface sometimes misdetected a CAS 140B for a CAS 140CT and vice versa
4.8	New Feature	Note in thread safety chapter of documentation about global colormetric settings
4.8	New Feature	New CalibrationPart <code>tcpIIATransmission</code> which is turned off by default
4.8	New Feature	Renamed calibration part constant for IIA wavelength shift to <code>tcpIIAWavelengthShift</code>
4.8	New Feature	CAS4TestOSX (Mac) now uses new IIA calibration parts
4.8	Fix	<code>mpidAutoFlowTime</code> retrieves correct values for all devices
4.8	Fix	Removed references to deprecated method list in documentation
4.8	Fix	Clarifying task about density filter in documentation
4.7.2	Fix	For versions 4.7.2 and $\geq 4.8.2$: Transmissions now only need to contain at least 3 datapoints (not 4)
4.7.2	Fix	For versions 4.7.2 and $\geq 4.8.2$: <code>paUpdateCompleteCalibration</code> (called explicitly with <code>casPerformAction</code> or internally when changing CalibrationParts and others) now reloads ISC file so it is resampled to modified X-Vector
4.7.2	Fix	For versions 4.7.2 and $\geq 4.8.2$: <code>dpidExtraTransmissionFileInfo</code> included transmission nodes that were loaded but not used
4.7.1	Fix	Avoid buffer overflows for trailing zero when getting strings
4.7.1	Fix	Loading old CAS AuditRecords resulted in default values being used. All Audit info was lost, when updated/stored.
4.7	New Feature	Software Development Kit (SDK) for 32-Bit and 64-Bit
4.7	New Feature	PCIe support – devices with PCI interface can now use PCIe interface boards as well
4.7	New Feature	StrayLightCorrection support
4.7	New Feature	New device parameter <code>dpidSLCFileInfo</code> to retrieve straylight calibration file info, if present

4.7	New Feature	CAS 140CT-HR (high resolution) support
4.7	New Feature	VC6 demo converted to VC2013 and added Win64 platform
4.7	Fix	Enhanced PCI Read Data timeout in order to avoid timeout errors with short integration times at high CPU load
4.7	New Feature	Redesigned documentation of CAS DLL
4.7	New Feature	C# interface uses proxy class for calling appropriate DLL version depending on target platform (x86 and x64)
4.7	Fix	C# Header uses IntPtr for PChar return values, fixes Win64 incompatibility
4.7	Fix	Method <i>casGetExternalADC</i> now marked deprecated in headers and documentation
4.7	Fix	CAS 140CT USB interface: first reading of temperature after power cycle resulted in ErrorCCDTemperature
4.7	New Feature	Device configuration file can now contain additional transmission(s)
4.7	New Feature / Fix	Improved Unicode support for calibration units
4.7	Fix	USB devices now resets ACQState and StatusLED after MultiTrack
4.7	Fix	CIE CRIs now calculated for CCTs below 1800 K
4.7	New Feature	New option and action to verify that device configuration and calibration are up to date
4.7	New Feature	New local datatype ushort in CAS4.h for Windows platforms
4.7	New Feature	New device parameter <i>dpidMultiTrackCount</i> replaces deprecated method <i>casMultiTrackCount</i>
4.7	New Feature	New device parameter <i>dpidCheckConfigFileSerial</i> and <i>dpidCheckCalibFileSerial</i> to implement AutomaticAccessoryDetection
4.7	New Feature	New perform action <i>paRecalcSpectrum</i> : recalculates the spectrum from the raw data of the last measurement
4.7	New Feature	New perform action <i>paUpdateCalibration</i> : recalculates the spectral calibration for all parameter sets
4.7	New Feature	New perform action <i>paSearchForDevices</i> to initiate search for new interface options for all interface types
4.7	New Feature	New perform action <i>paPrepareForShutDown</i> to stop all threads to fix deadlocks in DLL_PROCESS_DETACH for example when using DLL with LabView
4.7	New Feature	New measurement parameter <i>mpidColormetricWidthLevel</i> for custom peak width calculations