Getting Started

Phantom SDK

Version 13.4.788.0 (September 2019)

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Software release

Some new fields of the SETUP structure may be added in new software releases. This document is based on software release 788 (PhCon.dll, PhFile.dll, PhInt.dll version 13.4.788.0, PCC version 3.4.788.0).

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Contents

1. Package contents

This package contains the files needed to create applications for the control of the Phantom high speed cameras:

- Header files
  - PhCon.h
  - PhInt.h
  - PhFile.h

- 32-bit and 64-bit static libraries to be added to your link list
  - PhCon.lib
  - PhInt.lib
  - PhFile.lib

  - x64\PhCon.lib
  - x64\PhInt.lib
  - x64\PhFile.lib

- 32-bit and 64-bit binary .dll files
  - win32\PhCon.dll
  - win32\PhInt.dll
  - win32\PhFile.dll
  - win32\PhSig.dll
  - win32\PhSigV.dll
  - win32\PhRange.dll

  - win64\PhCon.dll
  - win64\PhInt.dll
  - win64\PhFile.dll
  - win64\PhSig.dll
  - win64\PhSigV.dll
  - win64\PhRange.dll

  Please note that all current Phantom .dll files maintain compatibility with previous versions. Moreover, current .dll files can safely be replaced with any newer version you may receive together with a Vision Research product, thus enabling access to newer cameras and newer features.

- Demo programs
  - HelloPhantom, a very simple console mode C application that initiate a recording in a camera (real or simulated), trigger it, obtain an image and save the recording to a file
  - PhDemoCPP, a C++ demo application, binaries and source code
  - PhSimpleDemoCPP, more simple demo application
  - PhDemoCS, a C# demo application, binaries and source code
  - PhSimpleDemoCS, more simple demo application

- Documentation:
  - GettingStarted - this file
  - Phantom SDK Reference Manual - main document for the Phantom SDK functions and data structures
  - PhDemo Developer Guide - help for the example applications
  - Cine File Format - documents the Vision Research proprietary file format
  - Upgrade Guide to SDK770 – documents the changes needed if you have an application developed for a version of the Phantom SDK < 769

2. Install and Logging

Before installing or using the SDK, you have to install the current release of software for controlling Phantom cameras. This release will provide all the .dll's files, drivers and the Phantom software (Pcc.exe or Phantom.exe) needed to access the Phantom cameras.

In principle, only the old Firewire cameras or the cameras and cinestations that use the 10g Ethernet need the install of device drivers; the standard Phantom cameras with Gigabit Ethernet can be controlled from software "installed" by copying the applications and the needed dlls in a folder on your hard disk. The preferred solution is, of course, running the Install CD you received with the cameras.

If you have cameras, please check your system with our applications: the current Pcc or Phantom release. Install the new release from the distribution CD or copy the exe and dlls to a separate directory. If you don't have cameras you can simulate them by calling PhAddSimulatedCamera function in your application or use the simulated camera features in our applications and demos.

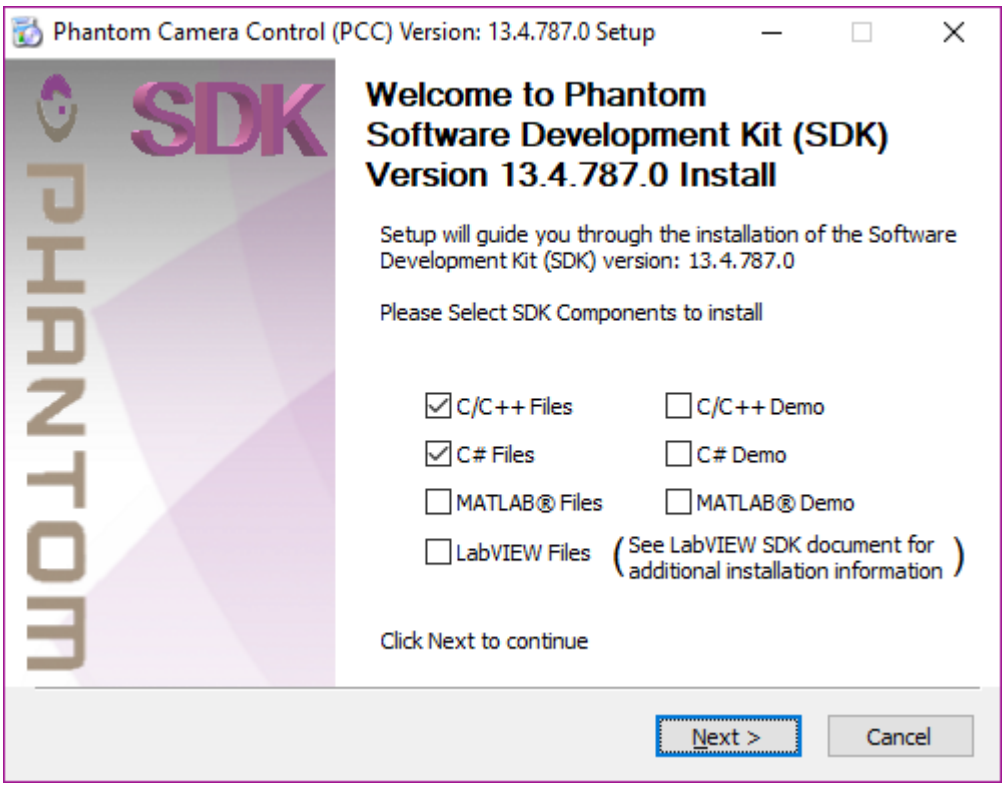
The Phantom dlls may produce debugging output to the file PhCon.log in the path specified at PhRegisterClientEx function. Take care to set a folder with read/write access rights. If you pass a NULL pointer for path, the SDK will choose "c:\ProgramData\Phantom\<version#>"

You can enable the collection of this data in the Phantom application: Help/About/Logging and those settings will be shared by all applications that use the dlls on that computer. If the application terminates normally you may speedup the application run with logging by checking the option Logging to RAM.

You can enable the logging in your application by calling the function PhSetDllsLogOption.

1.1. SDK Install Program

Using the install program, the user can select what components to install. The install program will always install the Dlls and documentation files. The install program does not require administrator rights for installation and does not make any changes to the system registry or windows folders.



1.2. SDK Manual Install

The install disk also contains a manual install folder with all SDK files, that can simply be copied to the user's system.

3. Major changes

Version 769

- PCC and the DLL support a new algorithm for camera enumeration.
- Cameras with more than 63 partitions.
- Control of Programable IO, available on some cameras.

Version 772

- Control of Sensor mode in V2640.
- Control of Rolling/Global shutter in VEO4K and Flex4k(GS) cameras.

Version 787

- Support function for nucleus camera update.

4. License warning

The current licensing for the Leadtools does not allow a third party to use their libraries without buying a license from them. In absence of that license, you do not have the right to redistribute their dlls with your application. That is not an issue with this SDK, since the Phantom dlls are run-time dynamic linked to Leadtools, so the absence of Leadtools library is tolerated.

5. Release notes

5.1. May 2001 - PhSDK553

1. First Release with support for the firewire cameras Phantom v4, v5.

5.2. November 2003 - PhSDK605

1. Support for the Ethernet cameras (v7, 4.2, 5.1)
2. MultiCine functions: PhSetPartitions, PhGetPartitions, PhDeleteCine, PhGetCineStatus, PhGetParams, PhSetParams, PhGetImage, PhGetAuxData
3. NVM functions: PhMemorySize, PhNVMGetStatus, PhNVMErase, PhNVMContRec, PhNVMGetSaveRange, PhNVMSetSaveRange, PhNVMSave, PhNVMRestore
4. Other functions: PhBusReset, PhBlackReference, PhGetCameraOptions, PhSetCameraOptions, PhGetResolutions, PhGetVersion, PhNotifyDeviceChangeCB
5. New Structures: CAMERAOPTIONS, CINESTATUS; IMPARAMS structure changed, new fields were added to ACQUIPARAMS.

5.3. September 2004 - PhSDK607

1. New functions: PhRegisterClientEx, PhCheckNotification, PhGetCineCount, PhNVMSaveClip, direct access to NVM cines; starts at cine number FIRST_FLASH_CINE. New functions to help the LabView interface PhLVRegisterClientEx, PhLVUnregisterClient, PhLVProgress.
2. ACQUIPARAMS – added Frame Rate Profile (FRP… fields)
3. Backward compatibility based on the PhCon header version specified at PhRegisterClientEx.

5.4. January 2007 – PhSDK640

1. New functions: PhAddSimulatedCamera, PhGetI3Info, PhGetCameraErrMsg, PhSaveCameraLog, PhBlackReferenceCI, PhMeasureWB, PhComputeWB, PhGetImageParameters, PhGetBitDepths, PhGetExactFrameRate, PhRecordSpecificCine, PhSetSingleCineParams, PhVideoPlay, PhGetVideoFrNr, PhWriteStgFlash, PhSetDllsLogOption, PhGetDllsLogOption
2. Structures:

   ACQUIPARAMS – added Decimation, BitDepth.

   IMAGEPARAMS – added VideoSaturation, PedestalR, PedestalG, PedestalB.

   CAMERAOPTIONS – added SourceCamSer, SliceNr, SliceCnt, FRPi3Trig, UT, AutoSaveFormat, SourceCamVer, RAMBitDepth, VideoTone, VideoZoom, FormatWidth, FormatHeight
3. New video out modes added (HDTV compatible).
4. This version of the dlls was compiled in Visual Studio 2005.

5.5. August 2009 – PhSDK675

1. New functions: PhGetCameraModel, PhParamsChanged, PhSetCineImageParameters, PhGetCineImageParameters, PhRestoreCameraStatus, PhGetIgnoredIp, PhAddIgnoredIp, PhRemoveIgnoredIp, PhGetVisibleIp, PhAddVisibleIp, PhRemoveVisibleIp, PhSearchForAllCameras, PhGet, PhSet
2. Structures

   ACQUIPARAMS – added CamGainRed, CamGainGreen, CamGainBlue, CamGain, ShutterOff, CFA, CineName, Description

   IMPARAMS – added VideoHue

   CAMERAOPTIONS – added AutoPlayCnt, OSDDisable, RecToMag, IrigOut
3. This version of the dlls was compiled in Visual Studio 2008.

5.6. June 2011 – PhSDK705 for Windows 32 and 64 bits

1. New functions: PhGetCineImage,PhProcessImage, PhGetCineLive, PhSetUseCase, PhGetUseCase, PhPrintTime, PhSetCineInfo, PhCineGet, PhCineSet.
2. Structures:

   ACQUIPARAMS – added FRPShape

   CAMERAOPTIONS – added FormatXOffset, FormatYOffset

   IH - new structure, an extension of BITMAPINFOHEADER
3. This version of the dlls was compiled in Visual Studio 2008.

5.7. September 2017 – new enumeration

1. This version supports a new enumeration algorithm of the cameras and fast switch between offline and online status.

   All camera enumeration is done in the SDK; no need to call PhNotifyDeviceChange anymore
2. SDK supports cameras with more than 63 partitions. For changes needed at 1. and 2. please read the document “Upgrade Guide to SDK 770”
3. New functions: PhGet1, PhSet1, PhGet2, PhMaxCineCnt, PhFirstFlashCine, PhOffline, PhConfigPoolUpdate, PhOffline, PhDisableVisible, PhIsVisibleDisabled, PhFillIDInfo
4. New Selectors: gsSupportsProgIO, gsPortCount, gsSigCount, gsSigSelect, gsPulseProc, gsHasPulseProc, gsSigName
5. Structures:

   PULSEPARAM - new structure, Used for Programmable I/O Pulse control
6. You should use dFrameRate in ACQUIPARAMS and SETUP; a double value
7. This version of the dlls was compiled in Visual Studio 2013.

5.8. February 2018

1. New functions: PhGet1, PhSet1, PhGet2, PhMaxCineCnt, PhFirstFlashCine, PhOffline, PhConfigPoolUpdate, PhOffline, PhDisableVisible, PhIsVisibleDisabled, PhFillIDInfo
2. New Selectors: gsSupportsSensorModes, gsSensorModesList, gsSensorMode

5.9. November 2018

1. New DLL: PhRange.DLL

5.10. June 2019

1. New function: PhUpgradeFirmware,
2. New Selectors: gsEthernet10GAddress, gsEthernet10GMask,