

eBUS SDK 4.0

Release Notes

Introduction

eBUS™ SDK release 4.0.5 is the latest software development kit (SDK) from Pleora Technologies. These release notes pertain to the General Availability (GA) release of the software, as of July 3, 2014, and describe the changes since the release 3.1 GA version.

What's New in Release 4.0?

- Support for USB3 Vision™ devices, in addition to existing GigE Vision® device support.
- Support for the Red Hat Enterprise Linux and CentOS distributions (eBUS SDK release 4.0.3 and later). Support for the Ubuntu distribution (eBUS SDK release 4.0.4 and later).
- Refresh of the GEVPlayer application (now called eBUS Player) to reflect the application's ability to support both GigE Vision and USB3 Vision devices.
- Addition of a USB3 Vision driver, which provides device control and streaming capabilities.
- Simplification of driver installation on the Windows® operating system. The eBUS Universal Pro driver (USB3 Vision driver and GigE Vision driver) can now be installed as part of the eBUS SDK installation wizard, or can be installed using the simplified eBUS Driver Installation Tool.
- Enhancements to the eBUS SDK installation packages for the Windows operating system. The eBUS SDK is now available as two separate installation packages for Windows: 32-bit and 64-bit. New runtime packages are also available (32-bit and 64-bit versions), for seamless integration into applications developed with the eBUS SDK. The merge modules that are used to create a customized application installation package are available in a separate ZIP file.
- Creation of a library to allow third-party SDKs to communicate with the serial port on Pleora devices.
- Addition of new Windows debug libraries that improve customers' ability to debug their software applications while developing applications using the eBUS SDK.
- Updates the integrated GenApi module of the GenICam™ specification to a more recent version (version 2.4.1).
- Addition of a new firmware updater tool that is distributed with the eBUS SDK. It can be used to update the firmware on Pleora USB3 Vision and recent Pleora GigE Vision devices.
- Support for Truesense™ sensor pixel formats defined as Sparse Color Filter 1 (SCF1) in the *Pixel Format Naming Convention (PFNC)*.



- Addition of MFC 11 support (shipped with Visual Studio 2012) to the PvGUI library.
- Inclusion of additional deinterlacing options in the eBUS SDK and eBUS Player: weave half and full temporal resolution, blending and line doubling.
- Made significant changes to the `PvDevice`, `PvStream`, `PvInterface`, and `PvDeviceInfo` classes to abstract the API for the GigE Vision and USB3 Vision standards.
- Addition of the `PvDeviceInfoPleoraProtocol` class. Note that devices that use the legacy, proprietary Pleora protocol can be detected but cannot be controlled with the eBUS SDK.
- Replacement of `PvUInt` types (such as `PvUInt16`) with more accessible `uint` types (such as `uint16_t`).
- XML files saved with the eBUS SDK or eBUS Player (Tools > Save GenICam XML) are saved as an XML file (if stored as an XML file on the device) or may now be stored inside a ZIP file. Issue ID 7438.

Fixed in Release 4.0.5

- `PvSystem :: GetDeviceCount()` now enumerates USB devices properly. Issue ID 7606.
- Fixed an issue where the eBUS SDK could corrupt the `PATH` environment variable if the original `PATH` is longer than 2048 characters. Issue ID 6551.

Fixed in Release 4.0.4

- Corrected an issue that prevented vDisplay HDI-Pro External Frame Grabbers from being displayed in the **Device Finder** window on the Windows operating system. Issue ID 7346.
- Calling `Pvsystem :: Find()` multiple times no longer causes `GetDeviceCount()` to count a device multiple times. Issue ID 7469.
- Corrected an issue that could cause corrupted information to appear in the Event Monitor for serial data on the Windows operating system. Issue ID 7487.
- `BUFFER_TOO_SMALL` errors when using chunk data no longer cause buffer reallocation events. Issue ID 7500.
- Made improvements to device detection that allow `PvStream` and `PvDevice` to initialize faster and to improve detection of a large number of devices. Issue ID 7412.
- Improved device detection when a large numbers of devices (over 100) are connected to a GigE network, using the Red Hat Enterprise Linux distribution. Issue ID 7111.
- The buffer options (available through the eBUS Player **Tools > Buffer Options** menu) can now be configured before connecting to a device. This is useful when working with a device in multicast or slave mode, as it avoids the **Buffers reallocated** error message. Issue ID 7376.
- Corrected an issue that prevented the connection from being automatically reestablished when the Ethernet connection is lost. Issue ID 7449.
- On the Red Hat Enterprise Linux distribution, when echoing a byte stream of hexadecimal values in the IP Engine Serial Communication dialog box, the correct information is now returned. Issue ID 6906.
- The DirectShow filter is now properly registered during the installation of the eBUS SDK on the Windows operating system. Issue ID 7410.
- General improvements to the sample code on the Red Hat Enterprise Linux distribution. Issue ID 6315, 7191, 7420, 7421, 7385.

- General enhancements to the eBUS Player for Linux. Issue ID 7352, 7354, 7345, 7415.
- Improvements to the Linux installation scripts. Issue ID 7367, 7380.

Fixed in Release 4.0.3

- Fixed a problem that could cause BUFFER_TOO_SMALL errors when streaming using PvPipeline with more than 64 buffers. Issue ID 6060.
- For USB3 Vision devices that do not support USB 2.0 interfaces, the eBUS SDK now prevents connection to the device through a USB 2.0 controller. Issue ID 6107.
- Now properly handling statistics when several auto-abort errors are experienced. Misleading negative bandwidth and frame rate values are no longer reported. Issue ID 6555.
- Improved device finder behavior to allow the detection of a large number of GigE Vision devices on the same network. Issue ID 6557.
- Fixed an eBUS Player crash caused by loading a persistence file on a multi-source device that had a source other than the first one selected. Issue ID 6643.
- Fixed a GDI resource leak when using the GenICam browser. Issue ID 6891.
- Improved compatibility with third-party USB3 Vision devices. Issue ID 6448.
- General eBUS Player enhancements to better handle connection/communication timeouts and display of USB3 Vision device information. Issue ID 6543, 6527, 6942, 5786, 6059.
- General sample code improvements. Issue ID 6597, 6220, 6115.
- Improved support for multiple USB3 Vision devices connected to a single computer. Issue ID 6271, 6602.
- `PvSerialPortIPEngine.Write()` no longer crashes when the serial0 port is used in the .NET API. Issue ID 6735.
- Improved handling of disconnections of USB3 Vision devices. Issue ID 6304.
- Corrected an issue with the .NET `PvDeviceFinderForm` control that could cause the `Selected` property to return null when it is selected in the **Device Finder** window. Issue ID 6116, 7433.
- `PvBuffer::IsTrailerValid` no longer returns false for a valid trailer. Issue ID 6591.

Fixed in Release 4.0.2

- It is now possible to change the IP configuration of Pleora Protocol devices programmatically and from the device finder user interface. Issue 6268.
- Fixed a crash that would occur when writing a string longer than 1024 characters to a `PvString` object resulting in an error. Issue ID 6311.
- Fixed an issue where serial communication through the device could fail when re-using the same `PvDevice` object to connect to a device. Issue 6366.
- eBUS Player no longer forces the device serial port speed to 9600 bps, which caused issues with camera heads that expected a speed other than 9600 bps. Issue ID 6441.
- Changed the way USB3 Vision events are managed by GenApi to comply with an erratum of the USB3 Vision standard. This may cause issues with early Pleora USB3 Vision firmware revisions. Issue ID 6522.

Fixed in Release 4.0.1

- Sample applications compiled in debug mode in Visual Studio 2010 or Visual Studio 2012 can now be run with no issues. Issue ID 6212.
- Firmware updates for USB3 Vision devices are now completed more reliably. Issue ID 6199.
- The TransmitTestPattern sample has been modified to correctly handle transmission stop requests. Issue ID 6018.

Known Issues and Limitations

Known Issues – Windows Operating System

- The PvDisplayWnd control does not send mouse events to the host application. Issue ID 7301.
- For action commands, the AckStatusLateCount and AckStatusOK counts are incorrect. Issue ID 7201.
- The TransmitTestPattern sample may cause the operating system to stop unexpectedly and an error message may appear on a blue screen. Issue ID 7025.
- When typing text in GenICam browser boxes, the interface incorrectly reports a maximum of 20 characters. The maximum number of characters is 19. Issue ID 7145.
- When using hardware acceleration, the image may not appear properly. Issue ID 7316.
- The eBUS SDK does not support having more than one IP address per NIC. If you want to use this configuration, contact your Pleora support representative. Issue ID 7305.
- When streaming from more than one USB3 Vision device on the same USB controller, it is possible to have a reported total bandwidth that is higher than the controller's supported bandwidth. This issue is caused by missing block IDs that are incorrectly included in statistics counters. Issue ID 6256.
- The eBUS Universal Pro driver (GigE Vision driver) cannot be installed on the loopback interface.
- On some non-English operating systems, the PATH environment variable includes the English term **Program Files**, instead of its localized counterpart. To correct this issue, manually change the PATH environment variable value using the Windows Control Panel. Issue ID 6397.
- When using the ebPCAPRecorder application to capture network traffic traces, the GigE Vision CMD_PACKETRESEND packets injected by the eBUS Universal Pro driver are not included in the resulting capture file. Issue ID 6463.
- When connecting to a GigE Vision device, the application may stop responding. However, this issue occurs infrequently. When this occurs, restart eBUS Player. Issue ID 6048.
- Disconnecting the USB 3.0 cable while upgrading the device firmware causes an erroneous transfer complete message. Also, if the transfer fails to start, the transfer dialog box may lock before the **Cancel** button is enabled. Killing the eBUS Player process is the only way to recover from this rare occurrence. Issue ID 6170 and 6163.

- In some areas, the eBUS SDK documentation requires additional updates, due to numerous API changes that occurred during this release (in part, to support USB3 Vision). Issue ID 6105, 6035, 5880, 5881.
- Changing the system time while connected to a device and streaming images, may cause inaccurate error counts or serial communication errors in applications created with the eBUS SDK. We recommend that you do not change the system time while streaming images. Issue ID 5670 and 5746.
- A call to `EbInstaller::Initialize()` will block until all property pages for the specified NIC are closed.
- We recommend that users disable network filter drivers installed by anti-virus software packages (if possible) when using GigE Vision devices. Some filter drivers have been known to cause a degradation of performance. For information about disabling network filter drivers, see the *Configuring Your Computer and Network Adapters for Best Performance* application note, available on the Pleora Technologies Support Center.
- With the Windows operating system, the maximum buffer size for an image is limited to the maximum driver I/O buffer size as defined by the operating system. On the Windows XP 32-bit operating system, the maximum buffer size is limited to 63.97 MB. On the Windows 7 32-bit and 64-bit operating systems, the maximum buffer size is limited to 3.99 GB.
- During the installation of some drivers, a Windows security alert dialog box may appear. To permanently accept Pleora's certificate and ensure that the alert dialog box no longer appears, perform the following steps when the alert dialog box appears:
 1. Click **Pleora Technologies Inc.**
 2. Click **Install Certificate** and then click **Next**.
 3. Select **Place all certificates in the following store**.
 4. In the **Certificate store** box, type **Trusted Publishers**.
 5. Click **Next**.
 6. Click **Finish**.
 7. Click **OK**.
- An issue with the Intel® 82572 Gigabit Ethernet chipset can degrade throughput.
- A persistence file is created when saving preferences in the eBUS Player sample application. This file is not removed by the installer. This file is **C:\Documents and Settings\username\Application Data\Pleora\eBUS Player.pvcfg**.
- When you uninstall the eBUS SDK, the license directory remains on your computer (it is not removed). This is by design, to prevent the eBUS SDK from deleting your license files.

Known Issues – Linux Operating System

- On the CentOS Linux distribution, enabling link recovery may cause eBUS Player to crash or may cause the computer to be slow to respond. Issue ID 7347.
- The silent mode switch in the runtime installer may not remove all popup windows. Issue ID 7322.
- When you uninstall the eBUS SDK, the license directory remains on your computer (it is not removed). This is by design, to prevent the eBUS SDK from deleting your license files.

Known Issues – Video Server API

- We strongly recommend that you use the eBUS Universal Pro driver (GigE Vision driver) when you are using the Video Server API on the Windows operating system. Doing so will avoid a bug in the drivers of some Intel NICs that cause dropped packets.
- With the Windows XP operating system, the Video Server API always sets the “do not fragment” bit of transmitted IP packets in unicast streams. This is a limitation of the Windows XP operating system.

System Requirements

The eBUS SDK is compatible with the following:

- Microsoft® Windows 8, 32-bit or 64-bit
- Microsoft Windows 7 with Service Pack 1 (or later), 32-bit or 64-bit
- Microsoft Windows XP with Service Pack 3 (or later), 32-bit*
- Windows Server 2012, 64-bit
- Windows Server 2008 with Service Pack 3 (or later), 64-bit*
- Red Hat Enterprise Linux 6, 32-bit or 64-bit
- CentOS 6, 32-bit or 64-bit
- Ubuntu 12.04 LTS 32-bit and 64-bit

* These operating systems are only supported for GigE Vision devices (USB3 Vision is not supported on Windows XP or Windows 2008 Server).

The following development environments are supported:

- Visual Studio 2005, Visual Studio 2008, Visual Studio 2010, and Visual Studio 2012. To develop .NET applications, Visual Studio 2010 or 2012 and Version 4.0 or 4.5 of the .NET Framework are required.
- For the Linux operating system:
 - GNU toolchain versions included with Red Hat Enterprise Linux 6, CentOS 6, or Ubuntu 12.04 LTS to compile non-GUI samples
 - Qt and qmake versions included with Red Hat Enterprise Linux 6, CentOS 6, or Ubuntu 12.04 LTS to compile GUI-based samples
 - Kernel-devel package for your specific kernel version to compile the eBUS Universal Pro for Ethernet filter driver

The following hardware is required:

- Network card or USB 3.0 host controller
- 80 MB of space free on hard drive for SDK, documentation, and sample applications

Supported USB 3.0 Host Controller Chipsets

Pleora has validated and supports only the following USB 3.0 chipsets:

- NEC Electronics/Renesas Electronics chipset
- Intel® Ivy Bridge chipset

Other chipsets may work properly but they have not been tested by Pleora.

Identifying the USB 3.0 Host Controller Chipset and a USB 3.0 Port

To identify the USB 3.0 host controller chipset and a USB 3.0 port, perform the following steps.

1. In the Windows Control Panel, open the Device Manager (**Hardware and Sound > Device Manager**).
2. Expand **Universal Serial Bus controllers**.
3. Identify the host controller chipset. USB 3.0 host controller chipsets are typically labeled **USB 3.0**. For example, **Renesas Electronics USB 3.0 Host Controller**.
4. When you connect your device to a USB port on your computer, look for USB ports with a blue tab. These ports (as defined in the USB 3.0 specification) are USB 3.0 ports.

GenApi, GigE Vision, and USB3 Vision Support

The following table lists the supported GenApi, GigE Vision, and USB3 Vision versions.

Table 1: GenApi, GigE Vision, and USB3 Vision Support

Component	Supported version
GenApi (GenICam)	Version 2.4.1
GigE Vision	Version 2.0 (and earlier)
USB3 Vision	Version 1.0

For More Information

The SDK documentation that is installed with the eBUS SDK is accessible from **Start > All Programs > Pleora Technologies Inc > eBUS SDK**. You can also navigate to the location in which the SDK documentation is stored on your computer.

Table 2: SDK Documentation

Operating system	SDK documentation location
Windows	32-bit operating system: C:\Program Files\Pleora Technologies Inc\eBUS SDK\Documentation 64-bit operating system: C:\Program Files (x86)\Pleora Technologies Inc\eBUS SDK\Documentation
Linux	<installation_directory>/share/doc/sdk/index.html

Additional documentation is available on the Pleora Technologies Support Center (<http://www.pleora.com/support-center>), such as:

- *eBUS Player Quick Start Guide* and *eBUS Player User Guide*
- *eBUS SDK C++ Quick Start Guide*
- *eBUS SDK .NET Quick Start Guide*
- *eBUS SDK for Linux Quick Start Guide*
- *Video Server API Quick Start Guide*
- *eBUS SDK Programmer's Guide*
- *Vision SDK to eBUS SDK Migration Guide*

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