PrimeSense™
Natural Interaction

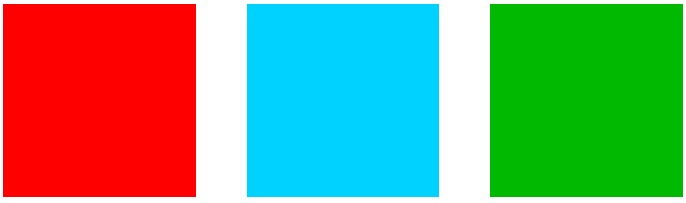
Carmine 1.09

3D Sensor

Reference Design v: 5.9.2

Release Notes

October 2013



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1 Introduction

1.1 Scope

This release notes document describes the PrimeSense Carmine 1.09 v5.9.2 firmware update.

This document includes the properties of the new firmware, as well as the information required to install it on Carmine 1.09 sensor units.

1.2 Support

If you have any questions or require further assistance, please contact PrimeSense customer support: support@primesense.com

2 Package Content

The firmware update package contains the following executable program file for performing the firmware update: **FWUpdate_RD109-112_5.9.2.exe**

For installation instructions, see *Section 6, Installing the Firmware Update* on page 6.

IMPORTANT INFORMATION

Once you have installed this update, you will not be able to downgrade to a previous firmware version.

3 Supported Platforms

Firmware v5.9.2 is verified to support the following platforms:

- Windows XP 32-bit
- Windows Vista 32-bit
- Windows Vista 64-bit
- Windows 7 32-bit
- Windows 7 64-bit
- Windows 8 32-bit
- Windows 8 64-bit
- Linux Ubuntu 12.04 32-bit
- Linux Ubuntu 12.04 64-bit
- ARM Linaro 11.12
- OS X 10.8 (Mountain Lion)

IMPORTANT INFORMATION!

Sensors can only be updated with the version 5.9.2 firmware on **Windows-based computers** with an existing **OpenNI installation**.

If you use a non-Windows-based environment, you should use a Windows computer to install the new firmware. You can then use the updated sensor unit with a host computer running any of the other operating systems listed above.

4 New Features

- The capability to work with the YUV color stream at 15 FPS in QVGA and VGA modes has been added.
- The device has a new USB product ID and is now recognized by the operating system as Carmine 1.09.
- A USB communication enhancement has been added, which solves some USB-related issues.

5 Corrected Issues for v5.9.2 firmware

- The boot time of the sensor has been improved.
- Further control has been added for white balance, gain and exposure values in RGB.
- An image stream resolution of 1280x1024 for YUV image formats of up to 8 FPS is now supported.
- An image stream resolution 1280x960 for greyscale output at 15 FPS is now supported.

For a comprehensive description of the updates, corrected issues and new features in previous versions of Carmine 1.09 firmware, see the Updates page on the PrimeSense website (http://www.primesense.com/updates/).

6 Installing the Firmware Update

6.1 Installing for Windows

6.1.1 Pre-Installation Requirements

Important Note: It is essential that the following requirements are met.

Before starting the update process please ensure that your environment supports the following requirements:

- Windows computer [XP, Vista, 7, or 8]
- An installed version of OpenNI1 or OpenNI2 (version 2.2.0.30 and later).

  Important Note: See *Section 7, Known Issues* on page 8 for further information about working with this release and OpenNI1 and OpenNI2.

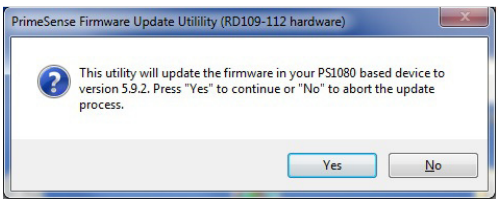
Download the v5.9.2 firmware update program at http://www.primesense.com/updates/.

IMPORTANT INFORMATION

Do not disconnect the sensor USB cable while the update is still being installed, otherwise it may damage the sensor software installation.

To install the firmware update:

1. Download the **FWUpdate_RD109-112_5.9.2.exe** firmware update program and save it on the hard drive of your Windows computer.
2. Use the USB cable provided to connect the sensor unit to your Windows.
3. Run the firmware update program. The following message is displayed:



4. Click **Yes**.

5. The installation progress log is displayed:

6. When the installation has successfully completed, press any key to exit the installation software.
7. The sensor unit has now been updated with V5.9.2 firmware.

6.2 Installing on other Operating Systems

The automatic update tool currently only works on Windows computers.

If you plan to run the sensor with a host using other operating systems, you must first update the firmware on a Windows computer, following the instructions in *Section 6.1, Installing for Windows* on page 6. For more information see the *Supported Platforms* section on page 5.

Once the Windows computer has had its firmware updated, the updated sensor can be used with other operating systems.

7 Known Issues

- As a result of the new USB product ID, the sensor drivers do not recognize the USB product ID, resulting in issues working with OpenNI1 and OpenNI2. You need to perform the following workarounds.

  Workarounds

  OpenNI2

  Update to the Latest OpenNI2. Navigate to the OpenNI website download page: http://www.openni.org/openni-sdk/ and download the latest OpenNI2 SDK.

  Note: You can only use OpenNI version.2.0.30 and above with Carmine 1.09.

  OpenNI1

  a. **Update the drivers.** Navigate to the OpenNI website history page (http://www.openni.org/openni-sdk/openni-sdk-history-2/), where there is a list of installation files for the OpenNI-Compliant Sensor Driver v5.1.6.4.

     Choose the required installation file for your operating system:

  b. **Apply a patch.** Navigate to the OpenNI website history page, and download the correct version 1.5.7.4 OpenNI1 patch for your operating system.

  Note: PrimeSense strongly recommends that our customers upgrade to OpenNI2.

- Certain USB chipsets can cause a reduction in performance as a result of their internal technology.

  Workaround: Use **BULK USB Mode.**

  Since BULK mode support compressed modes only, you need to set the streams to compressed mode. The following procedures describe how to do this for OpenNI2 and OpenNI1:

  OpenNI2: Use PS1080.ini:

  - Change USB Interface to BULK (UsbInterface=2)
  - Change Depth Input format to Compression (InputFormat=1)
  - Change Image Input format to Compression (InputFormat=1)

  OpenNI1: Use SampleConfig.xml

  - Change USB Interface to BULK
  - Add the following section under the **ProductionNodes** node:

```
<Node type="Device">
        <Configuration>
                <Property name="UsbInterface" type="int" value="2" />
        </Configuration>
        </Node>
```

  - Change **Depth Input** format to **Compression**.
  - Add the following section under the **Depth/Configuration** node:

```
<Property name="InputFormat" type="int" value="1" />
```

- Add the following section under the **Image/Configuration** node:

```
<Property name="InputFormat" type="int" value="1" />
```

- Using Isochronous USB mode on Linux machines can sometimes cause the depth stream to decrease below 30 FPS.

  Workaround: Use Bulk USB mode (the default operational mode in OpenNI installation for Linux) on Linux machines.

- When using audio UAC streaming alongside depth streaming on Linux host computers or on host computers with non-Intel USB chipsets, you should always ensure that you first open the depth stream and then the audio stream. If you do not open the streams in this order, the audio can sometimes stop streaming.

- When a PrimeSense sensor unit is connected to a computer running Windows Vista, Windows 7 or Windows 8, it is represented in the Windows Device Manager as “PrimeSense Device”. However, on computers running Windows XP (32 bit), the sensor unit shows up as “USB Device”.