

Vision Point Software Installation Guide

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Table of Contents

| | | |
|-------|--|----|
| 1 | Revision History | 1 |
| 2 | Figures and Tables | 3 |
| 2.1 | List of Figures | 3 |
| 2.2 | List of Tables | 3 |
| 3 | Introduction | 4 |
| 3.1 | Safety precautions | 4 |
| 3.2 | Disclaimer | 5 |
| 3.3 | Important Notes | 5 |
| 4 | Installation Procedure for Windows..... | 6 |
| 4.1 | System Requirements..... | 6 |
| 4.2 | Installation Procedure | 7 |
| 5 | Installation Procedure for Ubuntu | 14 |
| 5.1 | System Requirements..... | 14 |
| 5.1.1 | Ubuntu 18.04 / 20.04 | 14 |
| 5.1.2 | Nvidia Jetson Xavier..... | 14 |
| 5.2 | Installation Procedure | 14 |
| 5.3 | Uninstallation Procedure..... | 15 |
| 5.4 | Signing hardware driver using DKMS | 15 |
| 5.5 | Building hardware driver | 18 |
| 6 | Installation Notes | 19 |
| 6.1 | How to downgrade Vision Point application from version 2019.1 to 4.4 | 19 |
| 6.2 | Driver installation for Windows..... | 19 |
| 6.3 | Software and firmware upgrade for Windows | 19 |
| 6.4 | Technical Support and Professional Services | 20 |
| 6.5 | Submitting a support request..... | 20 |

1 Revision History

| Version | Date | Notes |
|------------------|---------|---|
| 1.0 | 08/2014 | Initial release |
| 1.1 | 09/2014 | Predator API release 1.0.5.1 - Fix parameter types signature. - Additional working examples. |
| 1.0 | 08/2014 | Predator APP release 1.0.0 - Initial release |
| 2.0 | 10/2015 | Predator APP release 2.0.0 - Minor changes |
| 3.0 | 03/2016 | Visio Point APP release 3.0.0 - The product line "Predator" has been renamed "Vision Point." |
| 4.0 | 11/2016 | Visio Point APP release 4.0.0 - Installation for Ubuntu was added |
| 4.1 | 07/2017 | Visio Point APP release 4.1 - Documentation improvements |
| 4.2 | 09/2017 | Visio Point APP release 4.2 - New installation notes section |
| 4.3 | 04/2018 | Visio Point APP release 4.3 - Added contact and support information section |
| 4.4 | 09/2018 | Visio Point APP release 4.4 - Documentation improvements |
| 5.0 | 03/2019 | Visio Point APP release 2019.1/API 5.0 - Additional installation steps and instructions were added for Windows OS users - Documentation improvements |
| 5.0.1 | 05/2019 | Visio Point APP release 2019.1/API 5.0.1 - Review and minor documentation corrections |
| 5.1 | 07/2019 | Visio Point APP release 2019.2/API 5.1 - Review and minor corrections for Windows users |
| 5.1 | 12/2019 | Visio Point APP release 2019.2/API 5.1 - Review and minor corrections in system requirements sections |
| 5.2 | 06/2020 | Visio Point APP release 2020.1/API 5.2 - Windows 7 is no longer supported - Document rearrangement |
| 5.3 | 08/2020 | Visio Point APP release 2020.2/API 5.3 - System requirements update - Minor corrections in installation for Linux section |
| 5.4 | 12/2020 | Visio Point APP release 2020.3/API 5.4 - Review and minor corrections |
| 5.4 (patch) | 04/2021 | Visio Point APP release 2020.3/API 5.4 (Service pack 1) - Review and minor corrections |
| 6.0 | 09/2021 | Visio Point APP release 2021.1/API 6.0 - Installation instruction for CentOS and RedHat section was removed - Review and minor corrections |
| 6.0.1 (patch) | 01/2022 | Visio Point APP release 2021.1/API 6.0.1 - Added Nvidia Jetson Xavier system requirements |
| 6.1 | 04/2022 | Visio Point APP release 2022.1/API 6.1 - Python examples were added to installation package to support multiple camera flow - "KYInfo.bat" file was added to automate collection of diagnostic info |

| | | |
|-------|---------|--|
| | | - Added DKMS driver signature section |
| 6.2 | 09/2022 | Visio Point APP release 2022.2/API 6.2 - Added Ubuntu instllation procedure flags - Added Ubuntu uninstallation procedure section |
| 6.3.0 | 01/2023 | Visio Point APP release 2023.1/API 6.3.0 - Updated system requirements section - Added application installation administrator privileges requirement |

Table 1 – Revision History

2 Figures and Tables

2.1 List of Figures

| | |
|--|----|
| Figure 1 – Vision Point Welcome screen | 7 |
| Figure 2 – Vision Point installation location | 7 |
| Figure 3 – Installation components checkbox..... | 8 |
| Figure 4 – Start Menu shortcut folder | 8 |
| Figure 5 – Pre-installation review | 9 |
| Figure 6 – Installation process bar..... | 9 |
| Figure 7 – Back up your work | 10 |
| Figure 8 – Windows 7 PCI Driver installation alert..... | 10 |
| Figure 9 – Device driver wizard access dialog | 11 |
| Figure 10 – Device driver installation wizard | 11 |
| Figure 11 – Completing the device driver installation wizard for Windows 7..... | 12 |
| Figure 12 – Completing the device driver installation wizard for Windows 7 | 12 |
| Figure 13 – Completing the device driver installation for Windows 7 | 13 |
| Figure 14 – Completing the installation | 13 |
| Figure 15 – DKMS user input | 16 |
| Figure 16 – Secure boot configuration message | 16 |
| Figure 17 – Secure boot configuration password | 16 |
| Figure 18 – Images ‘a’ to ‘e’: Enrolling MOK instructions | 17 |

2.2 List of Tables

| | |
|---------------------------------|---|
| Table 1 – Revision History..... | 2 |
|---------------------------------|---|

3 Introduction

3.1 Safety precautions

With your KAYA's board in hand, please take the time to read through the precautions listed below to prevent preventable and unnecessary injuries and damage to you, other personnel, or property. Read these safety instructions carefully before your first use of the product, as these precautions contain safety instructions that must be observed. Be sure to follow this manual to prevent misuse of the product.



Caution! Read Carefully and do not disregard these instructions.

In case of a failure, disconnect the power supply

Disconnect the power supply immediately and contact our sales personnel for repair. Continuing to use the product in this state may result in a fire or electric shock.

If an unpleasant smell or smoking occurs, disconnect the power supply.

Disconnect the power supply immediately! Continuing to use the product in this state may result in a fire or electric shock. After verifying that no smoking is observed, contact our sales personnel for repair.

Do not disassemble, repair or modify the product.

It may result in a fire or electric shock due to a circuit shortage or heat generation. Contact our sales personnel before inspection, modification, or repair.

Do not place the product on unstable surfaces.

Otherwise, it may drop or fall, resulting in injury to persons or the camera.

Do not use the product if dropped or damaged.

Otherwise, a fire or electric shock may occur.

Do not touch the product with metallic objects.

Otherwise, a fire or electric shock may occur.

Do not place the product in dusty or humid environments, nor where water may splash.

Otherwise, a fire or electric shock may occur.

Do not wet the product or touch it with wet hands.

Otherwise, the product may fail or cause a fire, smoking, or electric shock.

Do not touch the gold-plated sections of the connectors on the product.

Otherwise, the surface of the connector may be contaminated by sweat or skin oil, resulting in contact failure of a connector, malfunction, fire, or electric shock due to static electricity discharge.

Do not use or place the product in the following locations.

- Unventilated areas such as closets or bookshelves.
- Near oils, smoke, or steam.
- Next to heat sources.
- A closed (and not running) car where the temperature becomes high.
- Static electricity replete locations
- Near water or chemicals.

Otherwise, a fire, electric shock, accident, or deformation may occur due to a short circuit or heat generation.

Do not place heavy objects on the product.

Otherwise, the product may be damaged.

Be sure to discharge static electricity from the body before touching any sensitive electronic components.

The electronic circuits in your computer and the circuits on the *Iron* camera and the *Predator II* board are sensitive to static electricity and surges. Improper handling may seriously damage the circuits. In addition, do not let your clothing come in contact with the circuit boards or components. Otherwise, the product may be damaged.

3.2 Disclaimer

KAYA Instruments assumes no responsibility for any damage that may ensue by using this product for any purpose other than intended, as previously stated. Without detracting from what was previously written, the company takes no responsibility for any damages caused by:

- Earthquake, thunder strike, natural disasters, a fire caused by use beyond our control, willful and/or accidental misuse and/or use under other abnormal and/or unreasonable conditions.
- Secondary damages caused by the use of this product or its unusable state (business interruption or others).
- Use of this product in any manner that contradicts this manual or malfunctions due to connection to other devices. Damage to this product that is out of our control or failure due to modification
- Accidents and/or third parties that may be involved.

Additionally, **KAYA Instruments** assumes no responsibility or liability for:

- Erasure or corruption of data caused by the use of this product.
- Any consequences or other abnormalities following the use of this product

3.3 Important Notes



Important notes

1. Vision Point application requires **administrator** privileges. Please make sure this requirement is met prior to installation execution.
2. The Iron IMX camera's firmware **must** be upgraded to version 4.0 (or higher) **before** installing Vision Point 2021.1 software. The latest firmware can be found [here](#).

4 Installation Procedure for Windows

4.1 System Requirements

Before installing, please, make sure your system meets the following requirements:

- Intel x64 processor or compatible.
- At least 4 GB of system memory.
- Windows 10 64 bit operating system
- Hard drive with 400 MB of free space
- At least one of KAYA Instruments boards installed
- Internet connection

Remarks:

1. Windows 7 is no longer supported (since version 2020.1, API 5.2).
2. Vision Point 2019.1 is the last version to support Windows 7 OS. We encourage our customers to switch to Windows 10 OS to support our latest updates and hotfixes.
3. Please pay attention to the difference between Windows 7 and Windows 10 OS installation dialogs during the installation process and follow the relevant instructions. Two additional dialogs appear during a Windows 7 installation; these dialogs are described in steps 10, 13, and 14.
4. For Windows OS to support the latest version of Vision Point, please make sure your Windows is up to date, and all the latest updates and hotfixes are installed
 - a. If your computer hardware does not support Windows 7 latest updates, please consider using the Vision Point 4.4 software version.
 - b. To downgrade the Vision Point application from version 2019.1 to 4.4, please refer to the troubleshooting section.
5. Genicam and OpenCV libraries will no longer be installed nor registered in the user directory path. During application installation, those are installed for internal use only and won't be accessible for the user, and thus if needed by the user's application, it should be installed separately.
6. Visual Studio 2017 flavor should be used on run-time. Visual Studio 2012 run-time is no longer supported nor included in the installation.
7. Inserting and/or removing KAYA PCI devices requires a reboot of the computer or restart of "KAYA Instruments" service. After that, one may use Vision Point Application or open API examples with KAYA devices.
8. Vision Point 2020.3 is the last version to support Windows 10 32 bit OS.

4.2 Installation Procedure

1. Within the Explorer window, open the folder that contains the installation file: KAYA_Vision_Point_Setup.exe and execute with administrator privileges.
2. After installing Utility, follow the instructions as described below.
3. On the Welcome screen, click "Next."

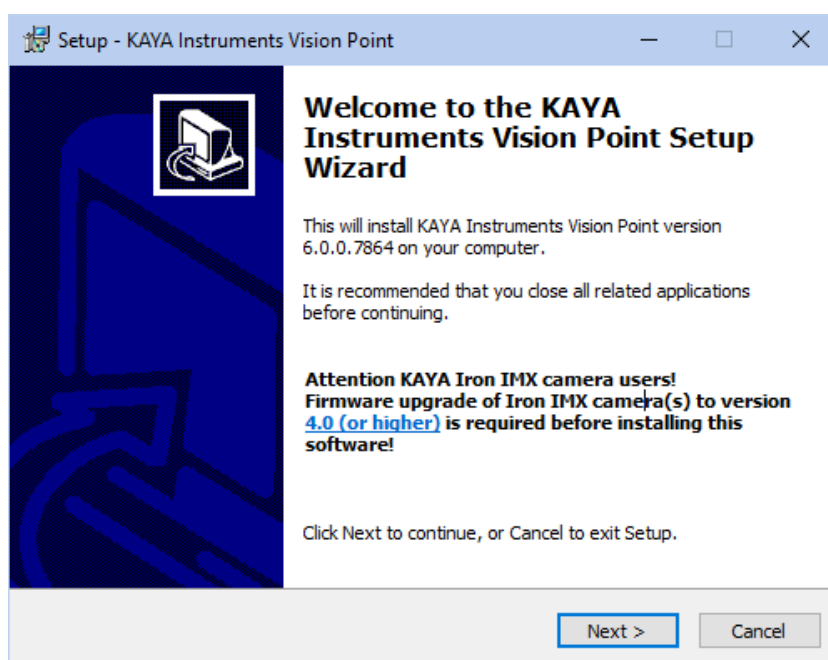


Figure 1 – Vision Point Welcome screen

4. At this stage, you will have to define the target folder for the installation. It is recommended to keep the default folder. After you select the installation folder, click the "Next" button.

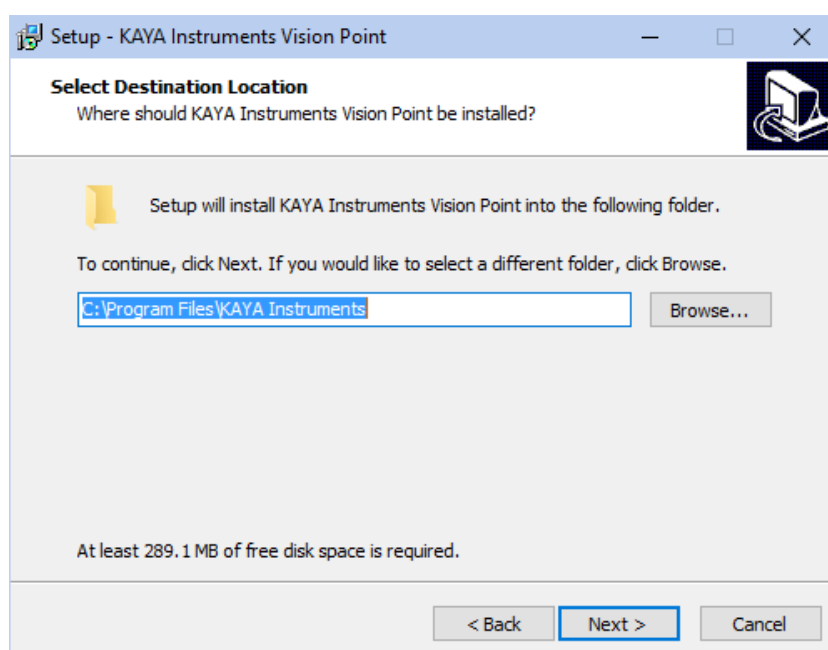


Figure 2 – Vision Point installation location

5. Install serial communication Virtual COM Port driver. The interface is available only for supported Frame Grabber devices.

NOTE: Serial communication interface, which doesn't require the Virtual COM Port, will still be available for supported devices.

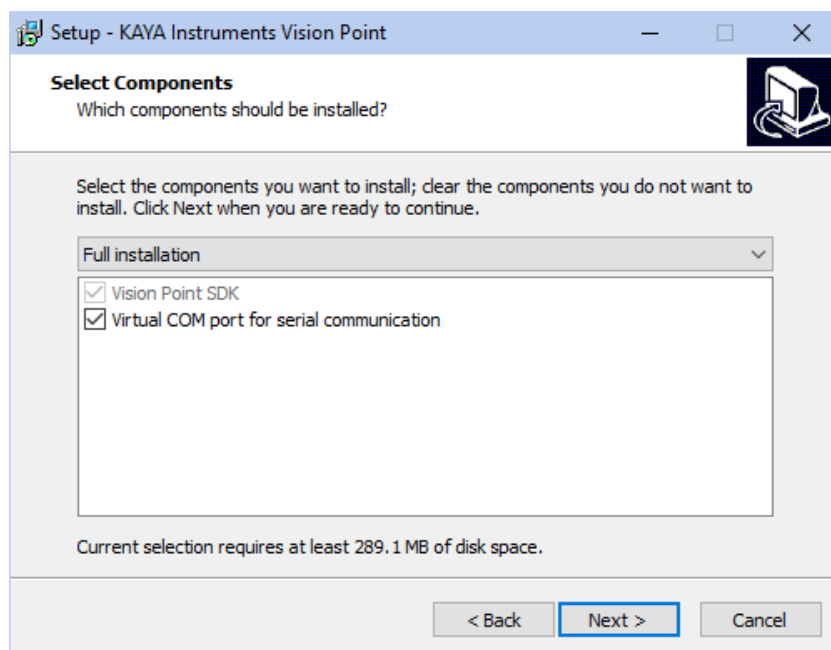


Figure 3 – Installation components checkbox

6. Now you will have to select the Start Menu folder for the software installation. It is recommended to keep the default location. Click the "Next" button to proceed.

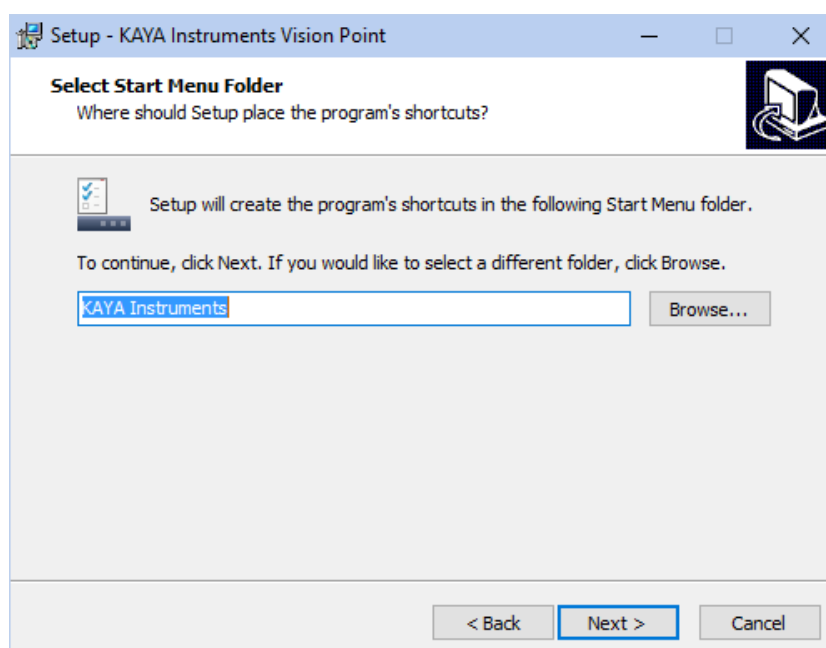


Figure 4 – Start Menu shortcut folder

7. At this stage, you will have the chance to review the settings before actual software installation. After you click "Install," the installation procedure will start. It will take a few minutes for the installation to complete. A few popup windows will appear during the installation.

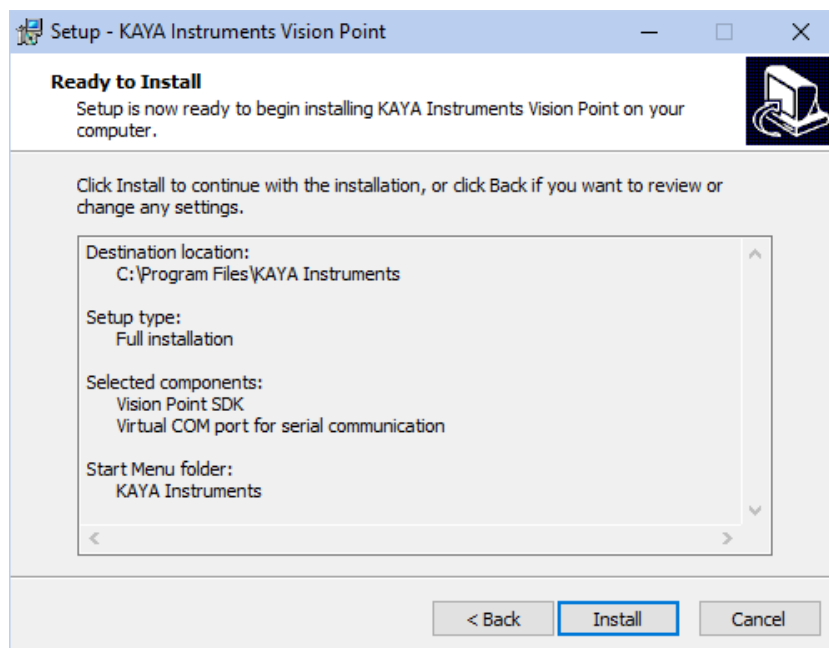


Figure 5 – Pre-installation review

8. During the installation procedure, a few popup windows will appear. Please follow the instructions listed in the next installation steps.

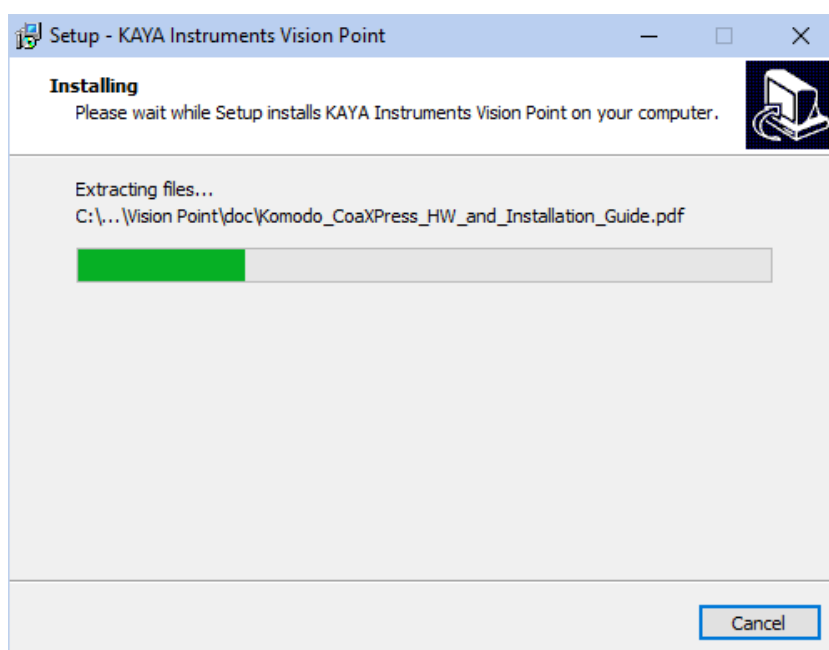


Figure 6 – Installation process bar

9. Please back up your work and example modifications if the Vision Point application was previously installed on your computer.

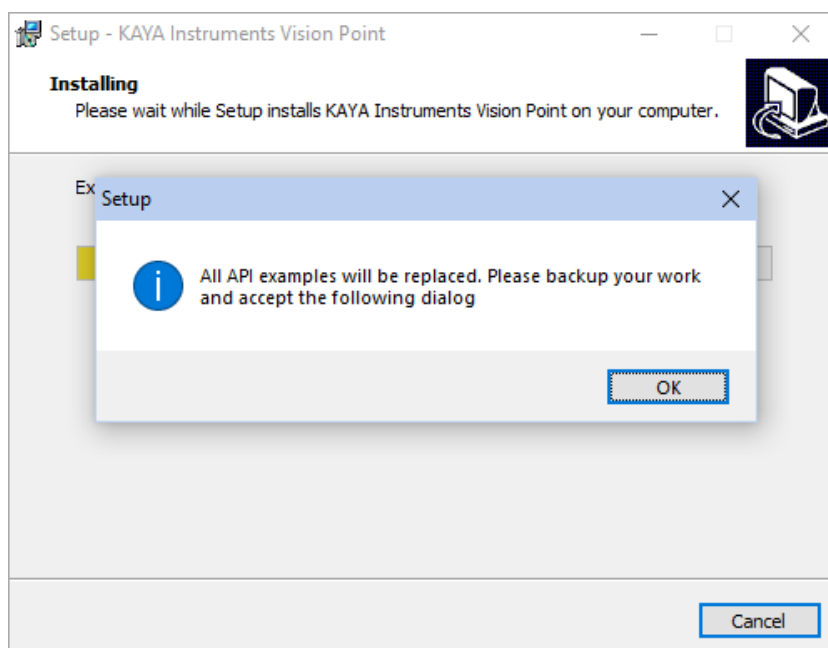


Figure 7 – Back up your work

10. Windows 7 ONLY: During KAYA PCI Driver installation, a Windows security alert window appears. This window will appear only in Windows 7 OS. Please press "Install." This alert may pop up a couple of times unless the checkbox "Always trust ..." is checked.

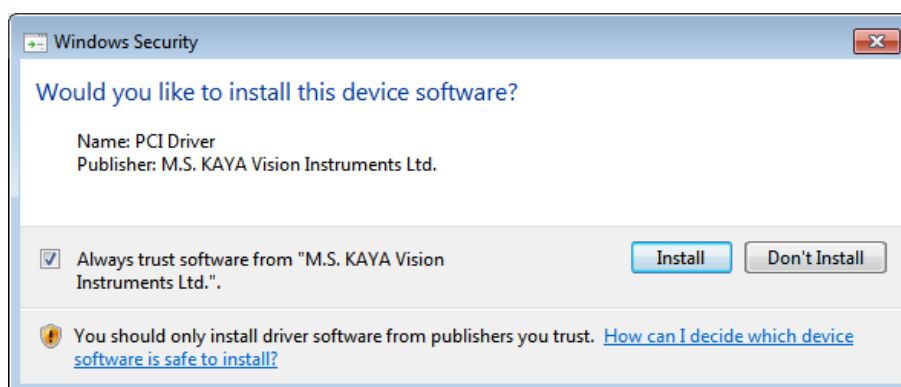


Figure 8 – Windows 7 PCI Driver installation alert

Remarks:

1. This window appears only with Windows 7 and in case of a clean installation.
2. Starting from version 2020.1 (API 5.2), Windows 7 is no longer supported.

11. Please accept the following dialog to access the driver installation wizard.

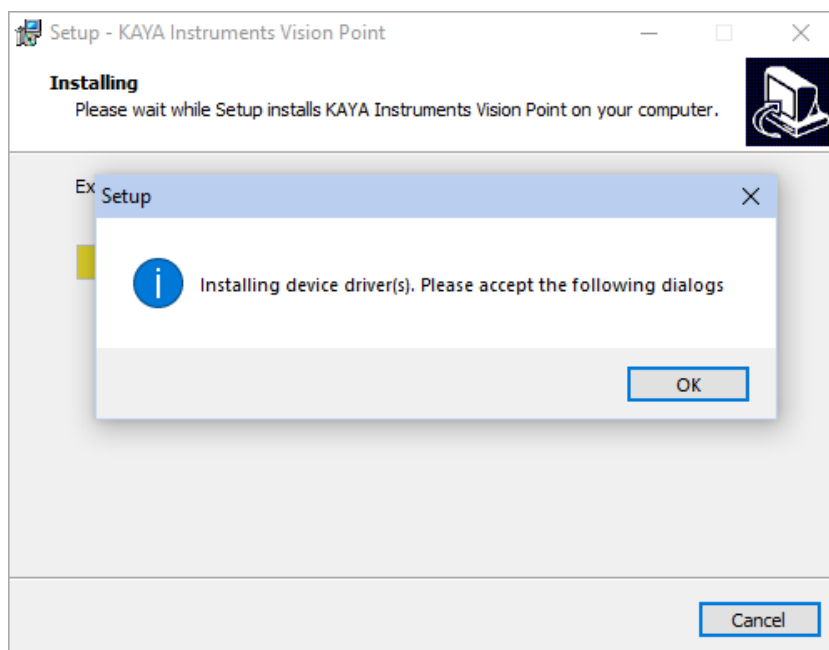


Figure 9 – Device driver wizard access dialog

12. Click the "Next" button to proceed to the device driver installation wizard.

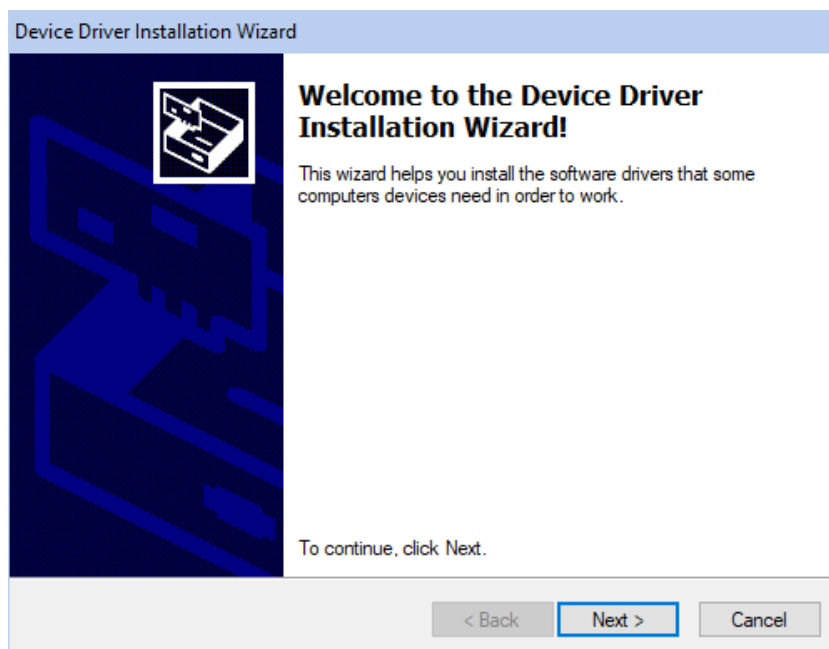


Figure 10 – Device driver installation wizard

13. The following dialog window will appear differently for Windows 7 and Windows 10 OS. Click "Finish" to finalize the device driver installation wizard.

NOTE: After pressing "Finish," a few popup windows will appear and disappear immediately.

Windows 7:

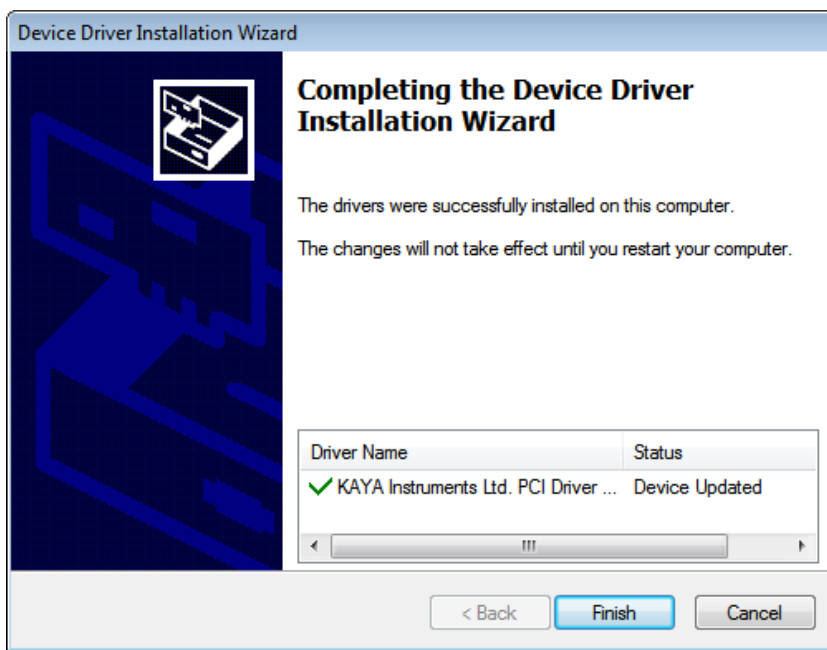


Figure 11 – Completing the device driver installation wizard for Windows 7

Remarks:

1. Windows 7 requires a reboot of the computer to complete the installation of the driver.
2. Starting from version 2020.1 (API 5.2), Windows 7 is no longer supported.

Windows 10:

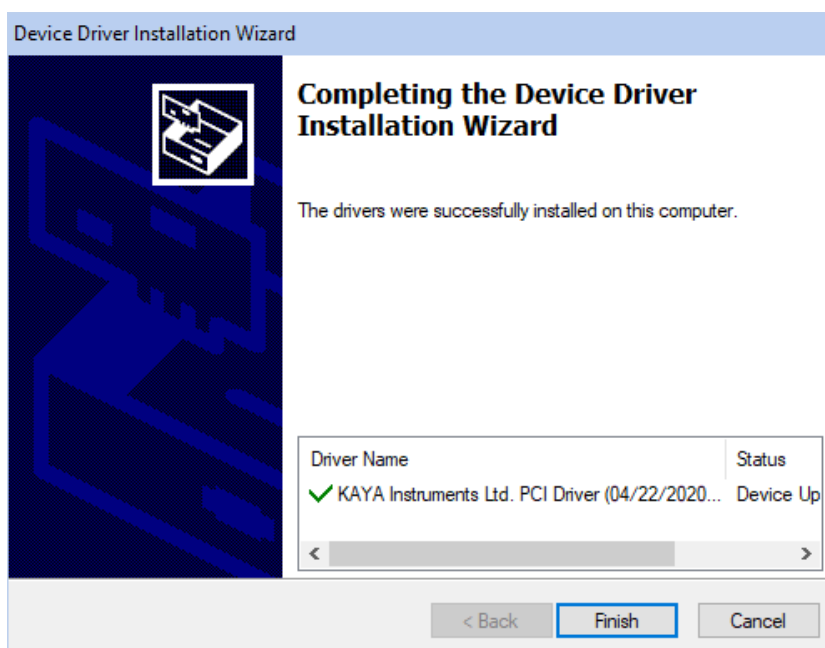


Figure 12 – Completing the device driver installation wizard for Windows 7

14. Windows 7 requires a reboot of the computer to complete the installation of the driver. At this point, click "**Restart Later**" for the installation to be completed.

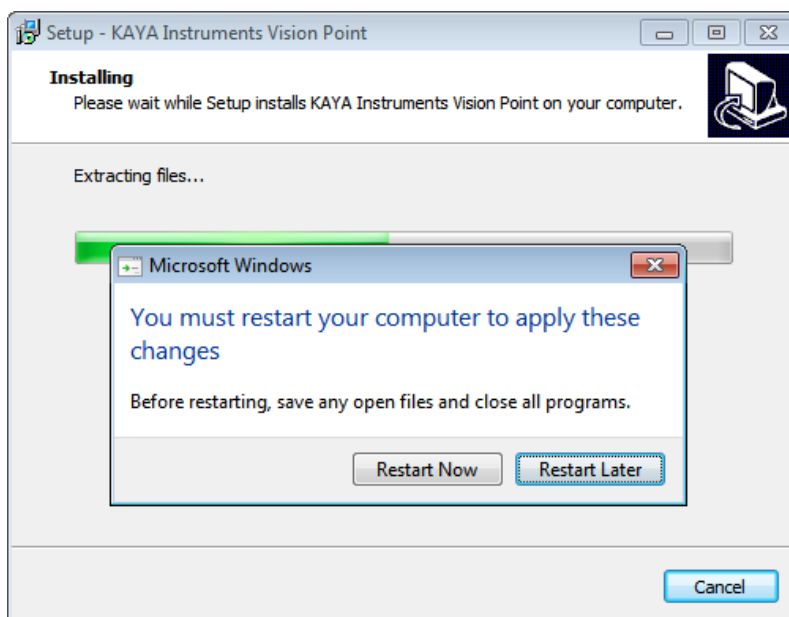


Figure 13 – Completing the device driver installation for Windows 7

NOTE: Starting from version 2020.1 (API 5.2), Windows 7 is no longer supported.

15. Windows 10 requires a reboot of the computer in order to complete the installation process. After a reboot, you are welcome to start Vision Point Application or open API examples.

New documentation was installed during the installation process. We encourage you to read it and familiarize yourself with new and improved features. Open the documentation folder using the link in the installation window.

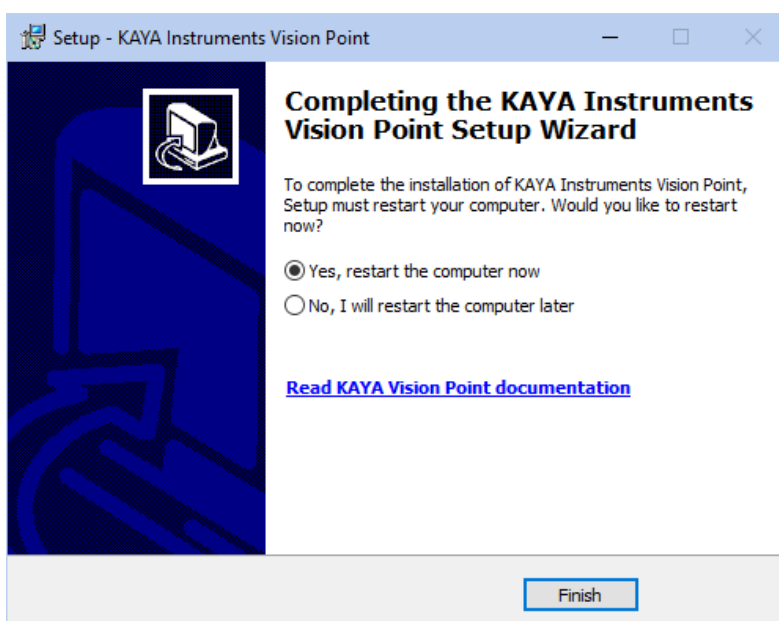


Figure 14 – Completing the installation

Installation log: The Vision Point application installation log files folder can be found under user's main driver: C:\Program Files\KAYA Instruments\Log\Installer folder.

5 Installation Procedure for Ubuntu

5.1 System Requirements

Before installing, please make sure your system meets the following requirements:

5.1.1 Ubuntu 18.04 / 20.04

1. Ubuntu 18.04 / 20.04 64-bit Operating System installed.
2. 4 GB of RAM or more.
3. 400 MB available disk space for a default install.

5.1.2 Nvidia Jetson Xavier

1. Nvidia Jetson AGX Xavier module or development kit.
2. JetPack 5.0.2 or higher.
3. 400 MB available disk space for a default install.

IMPORTANT NOTES:

1. In case you are using secure boot please read section [5.3](#) before continuing to installation procedure.
2. The installation package contains an .sh launcher to launch the executable in the adjusted environment. Users are required to use the installed Vision Point launcher, or "VisionPoint.sh" in the worst case, and **NOT** to run the executable directly.

5.2 Installation Procedure

1. Extract the provided .tar.gz file using the following terminal command:

```
tar -zxvf KAYA_Vision_Point_Setup_2021.1_Ubuntu_20.04_x64.tar.gz
```

NOTE: *Installation archive name may vary*

2. Enter the "KAYA_Vision_Point" folder from the terminal using:

```
cd KAYA_Vision_Point
```

NOTE: "KAYA_Vision_Point_Setup" may contain a suffix specifying OS name, version, architecture, etc., for example – "KAYA_Vision_Point_Setup_2021.1_Ubuntu_20.04_x64"

3. Run the installation script with the following command:

```
sudo sh install.sh
```

This will install the Vision Point software and all required components and drivers for supported hardware

NOTE: *The installation package includes hardware drivers for several different Linux kernel versions and will try to select one that corresponds to your currently running kernel. If a version for your current kernel is not yet included in the package, you will see a message: "No suitable pre-built driver was found for your current kernel ..." Please refer to the section "Building hardware driver".*

The following installation flags are available:

| flag | Description |
|------------------|--|
| -s or -silent | Silent installation, no user input required |
| -n or -no_dkms | Use regular driver (without DKMS) installation method |
| -d or -dkms | Use DKMS driver installation method (avoid DKMS question) |
| -a or -no_alerts | Suppress all alerts and messages |
| --keep_driver | Keep current kernel driver. By default kernel driver is reinstalled by this script |
| --keep_daemon | Keep current service (daemon). By default service executable is replaced |
| --keep_tray | Keep current tray configuration. By default tray executable is replaced and added to autostart |
| --keep_conf | Keep current internal configuration. By default only public conf is retained and internal one is cleared |
| --help | Display the list of available flags |

NOTE: Type '`--help`' at the beginning of the installation to view the list of available flags.

4. Reboot machine.
5. Vision Point Application can be found in the subfolder `"/opt/KAYA_Instruments/bin,"` and the launch icon is placed on the desktop.
6. API usage sample can be found in subfolder `"/opt/KAYA_Instruments/Examples"`.

5.3 Uninstallation Procedure

1. Enter the uninstallation folder from the terminal using:

```
cd /opt/KAYA_Instruments/lib
```

2. Run the installation script with the following command:

```
sudo sh uninstall.sh
```

The following installation flags are available:

| flag | Description |
|----------------|---|
| -s or --silent | Silent uninstallation, no user input required |

5.4 Signing hardware driver using DKMS

In Linux operating systems a secure boot process allows only approved drivers to run and requires hardware driver signature. To support this feature, the driver installation method has been changed, allowing the user to choose to add KAYA's driver to DKMS. The following steps explain the process of DKMS driver signing.

1. User may check whether a secure boot is activated and enabled for the OS using the following utility command:

```
mokutil --sb-state
```

NOTE: In case the secure boot was not initially installed, this utility will not be present.

2. Initiate the installation procedure, described in section [5.2](#).
3. During the installation procedure user input is required for choosing between default driver installation and signed driver installation using DKMS.

Use DKMS as driver installation method? Y/N

Figure 15 – DKMS user input

4. If secure boot is enabled, DKMS will try to sign the driver and the following message will pop up, in case systems MOK (Machine Owner Key) is **NOT** enrolled.

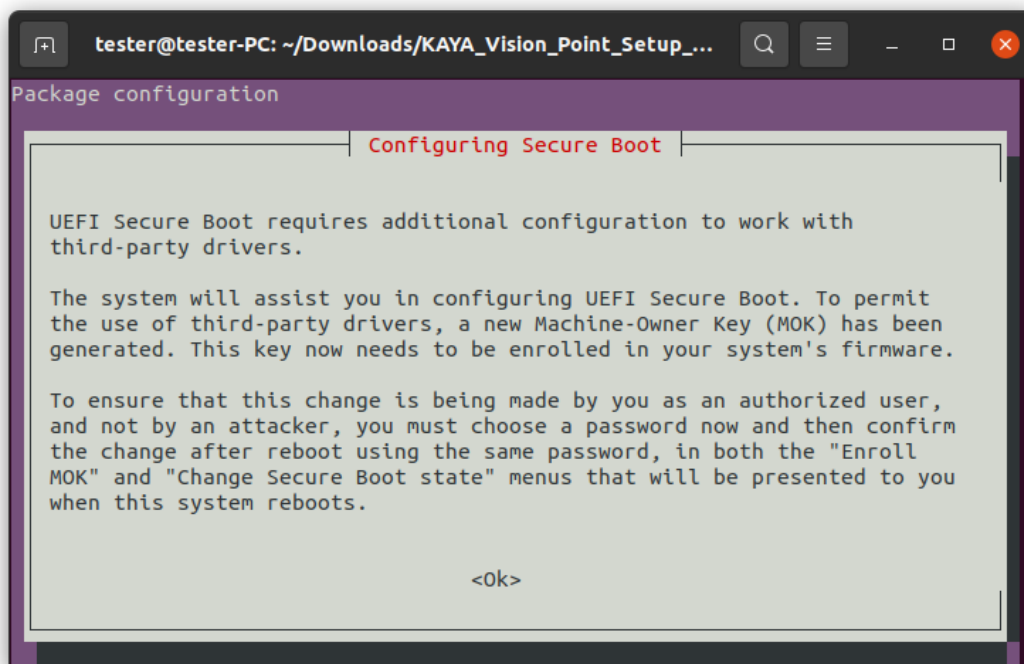


Figure 16 – Secure boot configuration message

5. Read the message and press "Ok".
6. Create the password. This is a one-time password, meaning it will be required later.

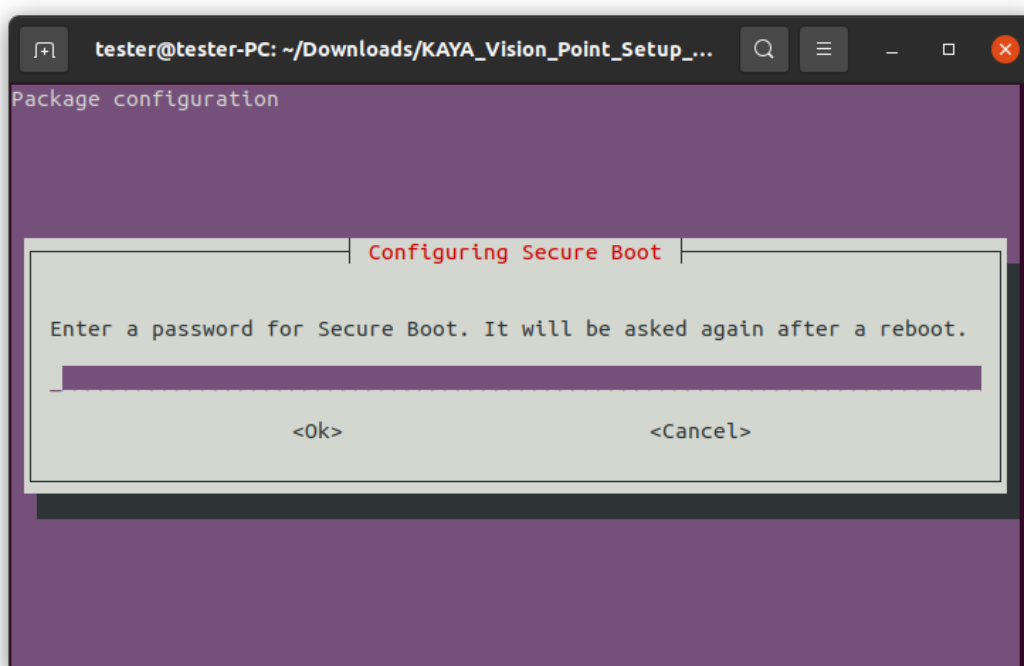


Figure 17 – Secure boot configuration password

7. After the installation is completed, reboot machine.
8. After computer reboot, the following dialog might be displayed on the screen. Choose "Enroll MOK" and follow the instructions shown below:

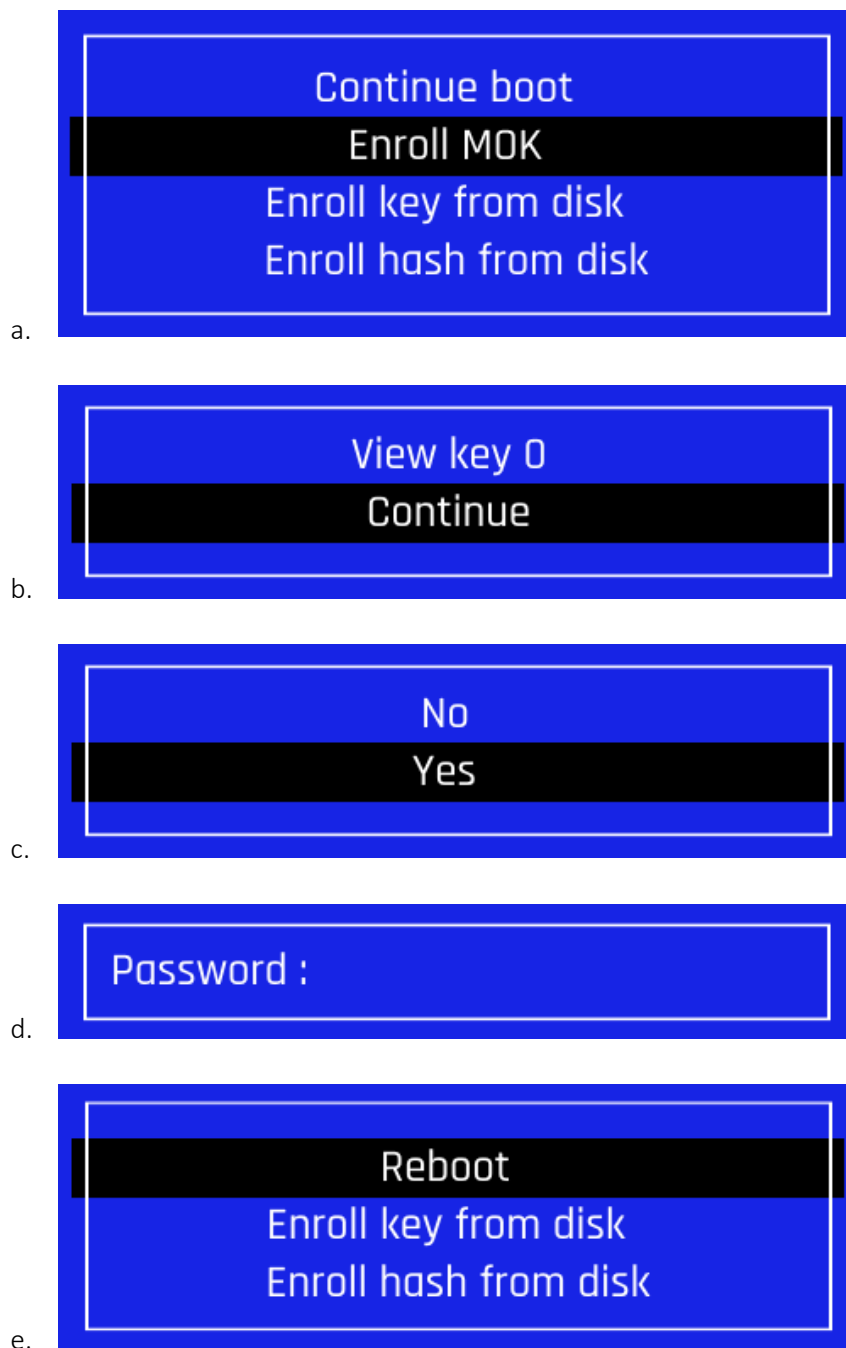


Figure 18 – Images 'a' to 'e': Enrolling MOK instructions

9. You may check the status of the driver using the following command:

```
Systemctl status kaya_driver.service
```

5.5 Building hardware driver

This section explains how to build KAYA hardware driver manually in case of a kernel update.

NOTE: This step is not a part of the installation process and should be disregarded in case the driver was added to DKMS.

1. Enter subfolder "KAYA_Vision_Point /PCI_drv_Linux" and run.

```
sh make_all.sh
```

NOTE: This step should produce a new driver file named "predator_driver.ko"

2. Install newly built driver with the following command:

```
sudo sh kaya_driver_install.sh
```

3. Reboot machine.

6 Installation Notes

6.1 How to downgrade Vision Point application from version 2019.1 to 4.4

Please follow these steps for a proper reinstallation of the Vision Point application:

1. Open the installation directory: "C:\Program Files\KAYA Instruments\Common\bin".
2. Execute the stop service command by double-clicking the "KYService_stop.bat" file.
3. Unregister by double-clicking the "KYService_unregister.bat" file.
4. Uninstall the Vision Point application by accessing the "C:\Program Files\KAYA Instruments\Vision Point" directory and executing "unins000.exe" file.
5. Download Vision Point 4.4 version and perform a full installation.

6.2 Driver installation for Windows

KAYA's drivers are digitally signed according to the latest Microsoft driver signing policy and procedure. The digital signatures certificate can be found in KAYAKERN.sys driver properties. For a successful driver signature verification, please ensure your Windows is up to date and all the latest updates and hotfixes are installed.

6.3 Software and firmware upgrade for Windows

The new Vision Point software no longer supports devices that do not use device ID 0x1000, including all devices with any firmware below 4.0.

Devices with Hardware ID below 0x1000 won't be recognized in Windows 10; thus, Hardware ID conversion won't be available. The new software contains numerous bug fixes and improvements, so we advise you to update the software to the latest version.

Please follow the instructions below:

1. Update the device firmware to the newest version.
NOTE: *PC power cycle is required after the firmware update (shut down, not restart).*
2. Please make sure the Hardware ID in Device manager shows the following:
PCI\VEN_1D2A&DEV_1000&SUBSYS_YYYY1D2A&REV_07 (when the "1000" is the four-character identifier for the device, and the "YYYY" is the four-character subsystem identifier).
3. Please update the software to the latest version.
NOTE: *The order of the steps is important. It is necessary to update the device firmware to 4.0 version or higher before installing a new Vision Point software. If the software is updated first, the device won't be detected (in this case one should downgrade the software and perform steps 1-2).*

6.4 Technical Support and Professional Services

If you searched the Vision Point API Data Book document and could not find the answers you need, contact KAYA Instruments support service. Phone numbers for our office are listed at the front of this document.

You can send mail to: support@kayainstruments.com

You can also create a support request on the web: <http://support.kayainstruments.com>

Our knowledge base is available on: <http://support.kayainstruments.com/kb/index.php>

6.5 Submitting a support request

Before opening a support request, one should prepare the following information:

- Logs form Vision Point where applicable (<https://support.kayainstruments.com/kb/faq.php?id=1>)
- PC configuration
- Operation System
- Card part number or full name
- Firmware in use
- Software in use