Cytopaint™ Classic for Windows®

Application Note

ISSUES WITH "MEMORY INTEGRITY" SETTING IN WINDOWS 11

SUMMARY

Leukobyte uses a **USB security dongle** manufactured by Keylok as the license key for our Cytopaint software. An issue has been identified on Windows 11 systems that will prevent the Memory Integrity security function from being enabled if older drivers for the dongle are installed on the system. You do not need to take any action if you are running Windows 10 or earlier, or if Cytopaint is running correctly on Windows 11 and you do not want to enable Memory Integrity.

Memory Integrity was introduced by Microsoft in Windows 11 along with several new security settings. The purpose and use of these functions is beyond the scope of this document, but there is a wealth of information available online if you wish to learn more.

There do not appear to be any issues in relation to the Keylok drivers running Cytopaint on Windows 11 with **Local Security Authority protection** or **Microsoft Vulnerable Driver Blocklist** enabled. To access the new security settings in Windows 11, type "`Core isolation`" in the Windows search bar.

All of the files required to resolve this issue can be found in our Leukobyte Public Downloads folder.

`leuko.site/public-downloads`

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Application Note

ISSUES WITH “MEMORY INTEGRITY” SETTING IN WINDOWS 11

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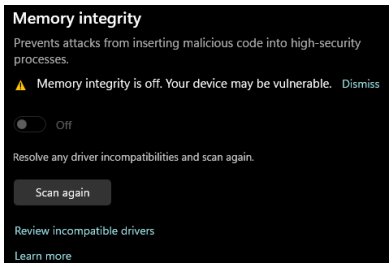
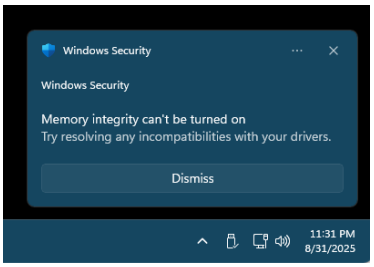
DETAILS

When you install Cytopaint, Windows drivers are also installed on your system that allow the application to communicate with the green Keylok USB dongle that is your license key. Cytopaint will not run if it cannot talk to the dongle. We currently install drivers that were released several years ago, but until now there have not been any reported issues with continuing to use the older drivers, even on Windows 11.

We recently received reports that customers could not enable the Windows 11 **Memory Integrity** function after installing Cytopaint. Our testing has shown that the older drivers which are currently installed with Cytopaint work on Windows 11 if **Memory Integrity** is off. We also confirmed that the older drivers work if **Memory Integrity** was enabled at the time the Cytopaint application was installed. This indicates that the older drivers are actually compatible with **Memory Integrity**, but for some reason Windows does not ***THINK*** that they are compatible.

The problem is that you cannot enable Memory Integrity AFTER the older Keylok drivers have been installed on your computer. Windows 11 will not allow **Memory Integrity** to be enabled if there are any "incompatible" drivers installed on the system, and you will see one or both of these messages if you try to turn it on and older Keylok drivers are still installed on the system:





In order to enable **Memory Integrity,** you will first need to uninstall the old Keylok dongle drivers, and then install the most recent drivers that are compatible with it.

While analyzing this issue we discovered that the "Uninstall" function in the Keylok Driver Installer application does not completely remove all old drivers from previous installations of Cytopaint, and we have also discovered that installing the most recent Keylok drivers before uninstalling the old drivers can occasionally lead to Cytopaint being unable to talk to the dongle at all. We have discussed this issue at length with Keylok, and we are hopeful that they will ***eventually*** provide an automated method for cleaning out their old drivers.

Detailed instructions for manually uninstalling all Keylok drivers from your system are supplied in this document, as there may also be cases on Windows 10 and earlier machines where uninstalling old Keylok drivers may be required. One of those cases (on any version of Windows) is where Cytopaint cannot communicate with the Keylok dongle when it is plugged into the computer and you see this dialog when launching the application:



HOW TO PROCEED

On Windows 10 we DO NOT recommend installing the newer drivers from Keylok.

As of October 2025, Windows 10 is no longer supported by Microsoft and will no longer receive security or other updates without an Extended Security Updates subscription (ESU). Leukobyte will not be testing any new dongle drivers on those systems. The older drivers will continue to work on Windows 7/8/10. Further, we have tested the application with those drivers, and there are no known security issues with them. Please continue using the older drivers on Windows 10 and earlier systems unless you plan on upgrading those systems to Windows 11.

On Windows 11 systems…

a) IF Cytopaint is already installed on your system and working correctly…

- **… AND** you **DO NOT** intend to enable **Memory Integrity**…
  - ❖ **You are good to go!** You don't need to do anything at this time.

    However…

    - We do not recommend leaving **Memory Integrity** off as it is a valuable security feature.
    - It is possible that the older Keylok drivers may stop working as Microsoft rolls out updates to Windows 11.

- **… AND** you want to enable **Memory Integrity**…
  1. Manually uninstall all Keylok Drivers (Page 5)
  2. Download and install the latest Keylok drivers (Page 13)

b) IF Cytopaint is installed on your system, but it can't Authenticate your USB Security Dongle…

1. Manually uninstall all Keylok Drivers (Page 5)
2. Do a Clean Installation of Cytopaint on Windows 11 (Page 10)

c) IF Cytopaint has never been previously installed on your Windows 11 computer…

- ❖ Do a Clean Installation of Cytopaint on Windows 11 (Page 10)

MANUALLY UNINSTALL KEYLOK DONGLE DRIVERS

❖ **NOTE:** You will need Administrator privileges for your computer to perform this procedure. If you do not have Administrator privileges then your organization's IT Department may need to handle this procedure.

⚠ ***WARNING:*** **This procedure uses Windows administrator-level tools that will uninstall ANY third-party driver that you specify from your system.**

Therefore, performing this procedure is ***AT YOUR OWN RISK***. Please read and understand this entire section before attempting it. Leukobyte, Inc. does not accept responsibility for any damage or loss, financial or otherwise to your computer, yourself, or your organization if you choose to attempt this procedure. Please do not attempt it unless you are comfortable with what is required, and the risks involved.

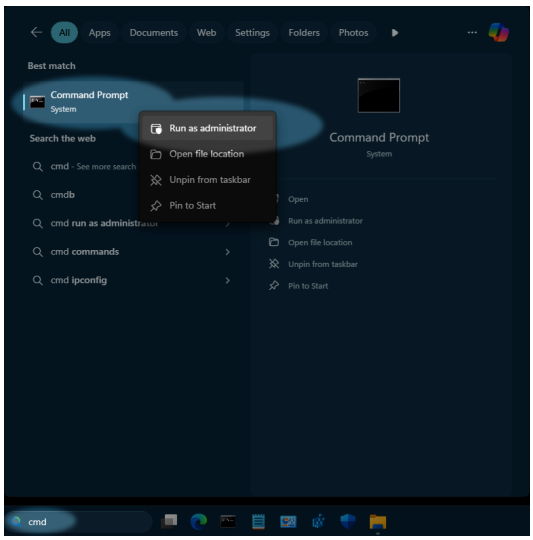
Above all, ***TAKE YOUR TIME!*** Double-check that you are selecting the correct drivers for removal, and follow the instructions in exactly the order listed here.

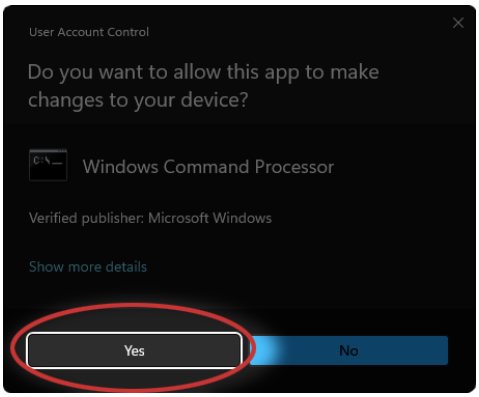
STEP 1 – UNPLUG YOUR DONGLE and RESTART WINDOWS

⚠ **IMPORTANT!**
UNPLUG THE KEYLOK DONGLE BEFORE BEGINNING THIS PROCEDURE.
The Keylok drivers cannot be completely removed while a dongle is plugged in to your computer.
Do not reinsert a dongle into the USB port on your computer until instructed to do so.

STEP 2 – Open a command prompt window as an Administrator

In the Windows search bar tyÍpe in "`cmd`", then right-click on **Command Prompt** in the list of search matches and select **Run as administrator**.





MANUALLY UNINSTALL KEYLOK DONGLE DRIVERS (continued)

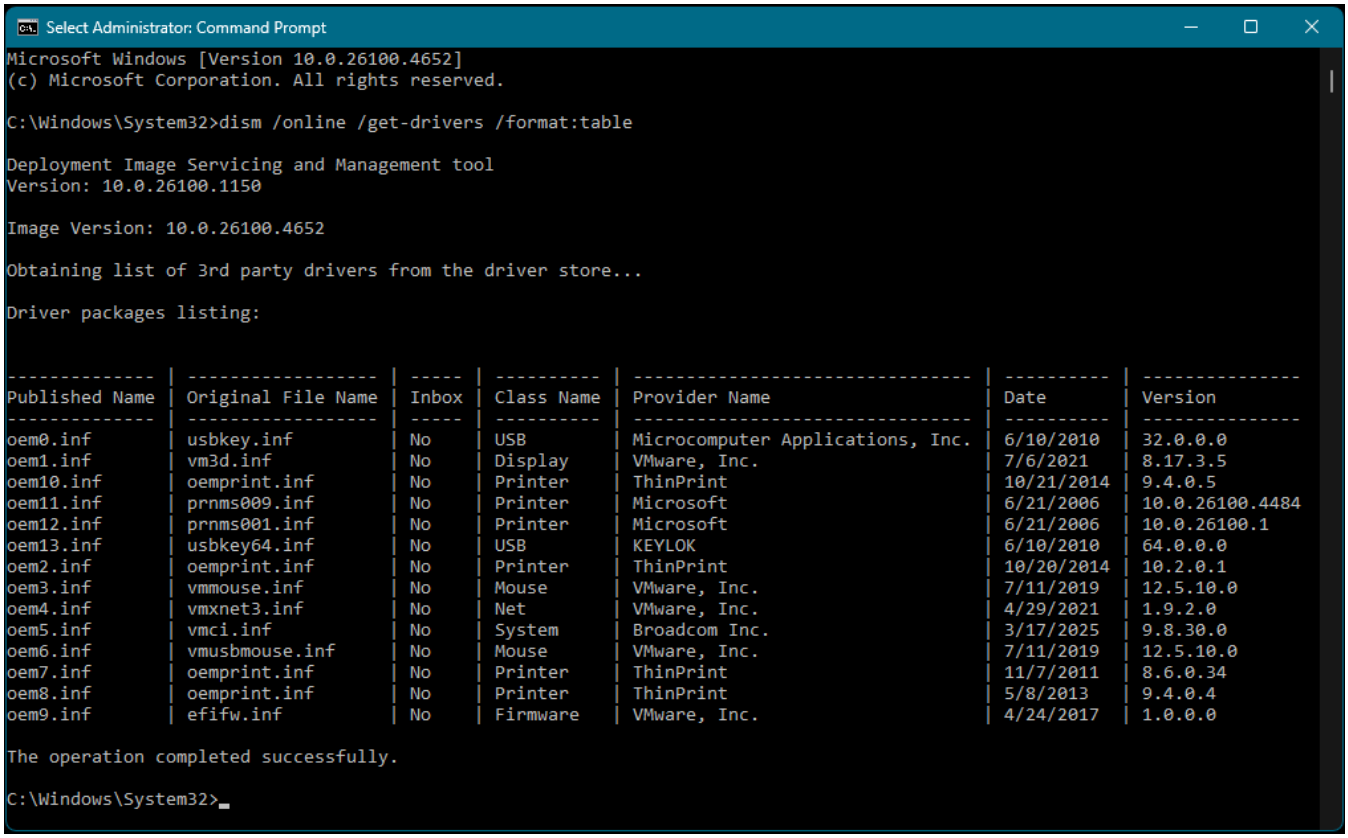
STEP 3 – List the third-party drivers installed **on your system using the Windows** `DISM` **tool.**

In the command prompt window, type in the following line and hit **ENTER**.

```
dism /online /get-drivers /format:table
```

You will be presented with a list that looks similar to this.

The drivers installed on your computer will not be the same as those shown here.

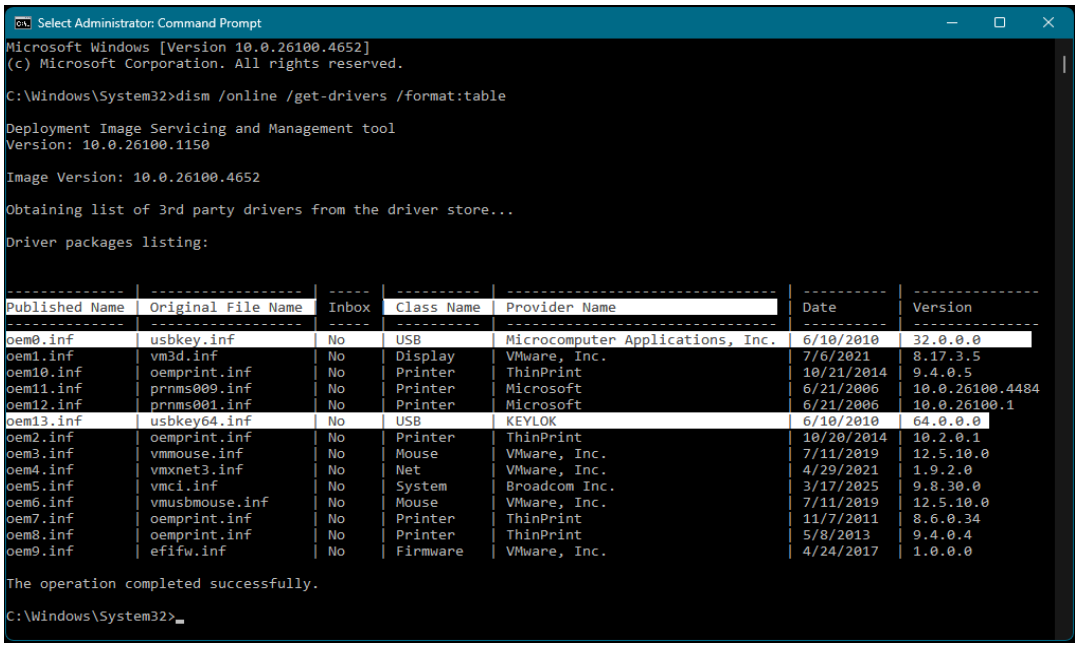


MANUALLY UNINSTALL KEYLOK DONGLE DRIVERS (continued)

STEP 4 – Write down the Published Name values from the first column for the Keylok drivers.

⚠ **It's very important to identify the correct drivers in this step since you will be using the Published Name values you record here to remove those drivers from your system.**

Look in the **Original File Name** column for drivers with the name "**usbkey.inf**" or "**usbkey64.inf**", or a **Provider Name** of "**Microcomputer Applications, Inc.**" or "**KEYLOK**". We have seen a case where a very old **usbkey64.inf** driver had a **Provider Name** of "**Put your company name here.**"



We have seen instances where there are zero, one, or multiple instances for both "**usbkey.inf**" and "**usbkey64.inf**". Having multiple instances does happen, and it appears to be caused by installing a newer version of Cytopaint on top of a much older version.

In the example above, the "**Published Name**" values for the Keylok drivers would be

oem0.inf
oem13.inf

❖ **If there are no drivers listed with an "Original File Name" of "usbkey.inf" or "usbkey64.inf", or Provider Names of "Microcomputer Applications, Inc." or "KEYLOK", then there are no Keylok drivers installed on your system and you can stop here.**

⚠ Make sure you record the "**Published Name**" values for ALL drivers with an "**Original File Name**" of "**usbkey.inf**" or "**usbkey64.inf**", or any other driver with a "**Provider Name**" of "**Microcomputer Applications, Inc.**" or "**KEYLOK**"

❖ The "**Provider Name**", "**Date**" and/or "**Version**" values may not be exactly as they appear in the example, but in all cases the "**Class Name**" value for Keylok drivers will say "**USB**".

MANUALLY UNINSTALL KEYLOK DONGLE DRIVERS (continued)

STEP 5 – Uninstall the Keylok drivers using the built-in Windows utility `PnPUtil`.

⚠ **If you have not already done so, UNPLUG YOUR DONGLE NOW!**

You will instruct `PnPUtil` to uninstall the drivers you identified in **STEP 4** one at a time.
The syntax of the uninstall command is:

```
pnputil /delete-driver Published Name /uninstall
```

In the example list shown in **STEP 3**, there were two Keylok drivers that we would need to uninstall.

Their "`Published Names`" were `oem0.inf` and `oem13.inf`, so we would need to execute the `PnPUtil` command twice in order to uninstall both drivers.

⚠ ***WARNING!*** **PnPUtil will uninstall whatever driver you specify in the command line, and you cannot undo the operation.** The commands shown below are only for this example, and may not be the `Published Names` for the Keylok drivers installed on your system.

DO NOT SIMPLY COPY AND PASTE THESE EXAMPLE COMMANDS ON YOUR SYSTEM!

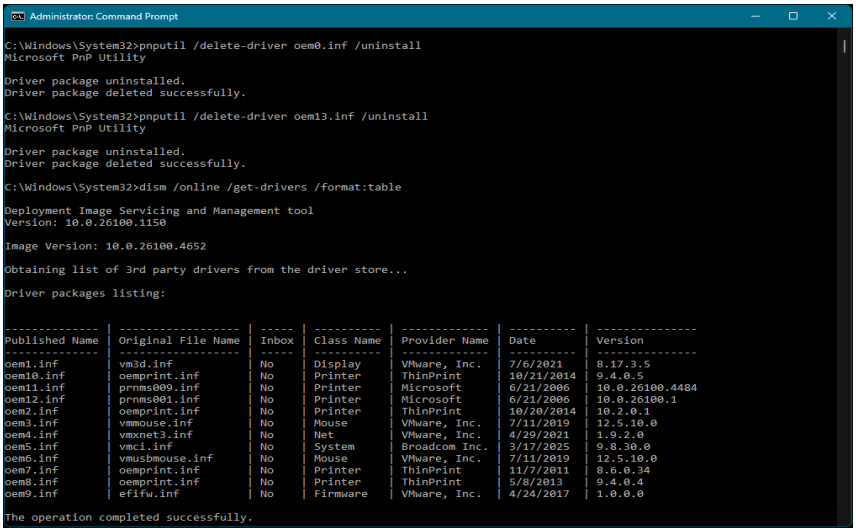
1. To uninstall the driver in this example with the `Published Name` `oem0.inf`, the command would be:

```
pnputil /delete-driver oem0.inf /uninstall
```

2. To uninstall the driver with the `Published Name` `oem13.inf`, the command would be:

```
pnputil /delete-driver oem13.inf /uninstall
```

After executing these commands and relisting the drivers still on the system, the Keylok drivers should be gone. If there were still Keylok drivers remaining then we would use `PnPUtil` to uninstall them as we did above.



It's your turn! Use the `PnPUtil` tool to uninstall the Keylok drivers from your system now.

IMPORTANT! After uninstalling the Keylok drivers from your system, **RESTART YOUR COMPUTER.**

MANUALLY UNINSTALL KEYLOK DONGLE DRIVERS (continued)

STEP 6 – Manually delete all Keylok driver files from your Windows system folders.

As previously mentioned, the Uninstall utility provided by the Keylok driver installer does not seem to do a very good job of cleaning up prior installations of their drivers. In testing we discovered that the uninstaller does not actually delete the driver files from your Windows system folders. There may be no harm in leaving these files on your computer, but the purpose of this procedure is to completely remove any trace of the drivers from your system, so you should also delete the driver files as well.

There will be several files installed on your system, and unfortunately the specific files will vary based on the version(s) of drivers you have installed at one time or another. We have listed all known files here. Be aware that many of these files may not exist on your computer. Just delete the ones that you can find.

Step 6A – Delete any of these files that exist in the folder `\Windows\System32\`

a) `KL2DLL64.DLL`
b) `NWKL2_64.DLL`
c) `ppmon.exe`
d) `ppmon64.exe`
e) `parclass.sys`

Step 6B – Delete any of these files that exist in the folder `\Windows\SysWOW64\`

a) `KL2N.DLL`
b) `KL2DLL32.DLL`
c) `NWKL2_32.DLL`
d) `ppmon.dll`
e) `ppmon.exe`

Step 6C – Empty the Recycle Bin on your system.

Step 6D – **IMPORTANT! RESTART YOUR COMPUTER**

At this point your system no longer has drivers for the Keylok dongle.

⚠ **Do not insert your dongle into the USB port until you have installed new Keylok drivers!**

PERFORM A CLEAN INSTALLATION OF CYTOPAINT ON WINDOWS 11

⚠ **This procedure is only for Windows 11 systems. It should not be used on Windows 10 or earlier.** On those systems you do not need to perform additional steps after running the Cytopaint Installer application normally.

IMPORTANT! The steps in this procedure are based on the assumption that there are no drivers for the Keylok USB Security dongle installed on your system. If Cytopaint was previously installed on your Windows 11 computer then you will need to uninstall any old Keylok drivers before installing Cytopaint on Windows 11 (see page 5).

⚠ **You will not install the Keylok drivers provided in by Cytopaint Installer application.**

❖ **NOTE:** You may need to be logged into Windows with administrator privileges to install Cytopaint Classic depending on which version of Windows you are using. Contact your organization's IT department if they manage your Windows setup.

❖ **NOTE:** Before installing Cytopaint Classic, close any running applications. This will eliminate any potential conflicts that may exist.

⚠ Make sure that the Keylok USB Security dongle **IS NOT PLUGGED IN TO THE USB PORT OF YOUR COMPUTER** before continuing!

Cytopaint Classic **MUST** be installed by using the installer application.

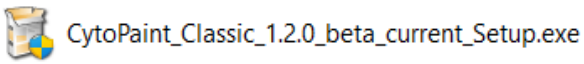


Figure 1: The Installer Application Icon

To install Cytopaint Classic on your Windows 11 computer, follow these steps:

1. Make sure that no Keylok USB Security dongle is plugged into your computer and log in to your computer as an Administrator.
2. Download the current Cytopaint Installer application directly by visiting

   `leuko.site/Cytopaint-Installer`

   or from the **Leukobyte Public Downloads** folder on our website:

   `leuko.site/public-downloads`
3. Double-click the installer icon (see Figure 1).

   The Welcome page appears displaying the version about to be installed.

PERFORM A CLEAN INSTALLATION OF CYTOPAINT ON WINDOWS 11 (continued)

4 Click *Next* in the *Welcome page*.

The license agreement appears. Please carefully read the license agreement.

5 Click *I Agree*.

❖ **Note:** Clicking "I Agree" binds you to the terms of the agreement.

6 Select optional components for installation, then click *Next*.

⚠ **NOTE: Windows 11 provides built-in support for reading pdf files, and we do not recommend installing Acrobat Reader on Windows 11 systems**.

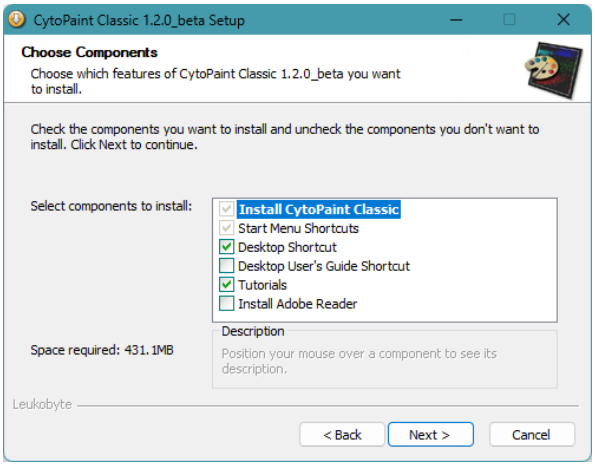


Figure 2: Installation Options Panel

7 Select a destination folder for installation, then click *Install*.

This window allows you to install CytoPaint Classic anywhere on your computer that you wish. The default location is C:\Program Files\Leukobyte\CytoPaint\. Once you've chosen your location, click the *Install* button.

❖ **Note:** Leukobyte recommends that the software be installed in the default location unless there is a specific need to install it elsewhere.

8 **DO NOT Install the drivers for the Software Security Module (dongle) provided in the Cytopaint installer application.**

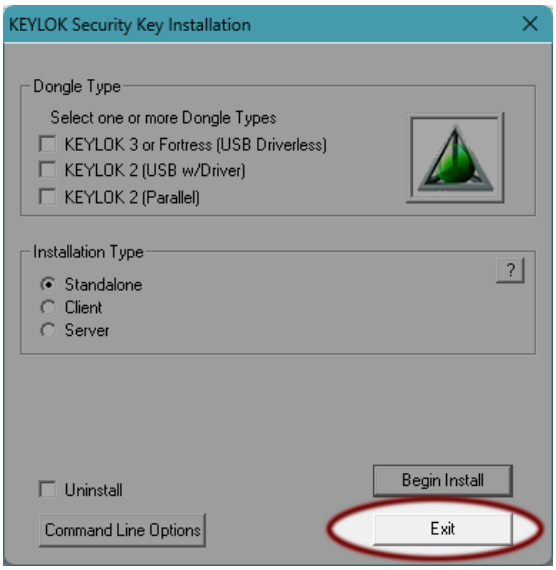


Figure 3: Exit the KEYLOK installer without Installing the drivers

9 Cytopaint Application Installation complete.

The next pane provides the opportunity to view the *Read Me* file. If desired, check the *View the readme file* checkbox, then click *Next*. When the Finish screen appears, click the *Finish* button to exit the installer.



10 Complete the **INSTALL "COMPATIBLE" KEYLOK DONGLE DRIVERS FOR WINDOWS 11** procedure starting on the next page.

INSTALLING "COMPATIBLE" KEYLOK DONGLE DRIVERS FOR WINDOWS 11

Drivers that allow Cytopaint communicate with the Keylok USB Security dongle are typically installed as part of the Cytopaint Application Installer application. The drivers installed with the current Cytopaint application are several years old, and are incompatible with certain security functions that were added in Windows 11. In testing we found that Cytopaint can communicate and authenticate the dongle even using the older drivers on a Windows 11 system. The incompatibility comes from the fact that the Win11 **Memory Integrity** security function cannot be enabled if the older Keylok drivers are installed on the system.

Keylok has released new drivers that allow Memory Integrity to be enabled on Windows 11, and we strongly suggest installing these drivers when doing a clean installation of Cytopaint on Windows 11.

⚠ **We DO NOT recommend installing the newer Keylok drivers On Windows 10 or older systems unless you plan on updating those systems to Windows 11.**

Windows 10 is no longer supported by Microsoft, and will no longer receive updates as of October 14, 2025 without an Extended Security Updates subscription (ESU). Leukobyte will not be testing any new dongle drivers on those systems. The older drivers will continue to work on Windows 7/8/10, and we have tested the application with those drivers, and there are no known security issues with them. Please continue using the older drivers on Windows 10 and earlier systems.

⚠ This procedure should only be used if no other Keylok drivers are installed on the system. For more information, see the section **MANUALLY UNINSTALL KEYLOK DONGLE DRIVERS** on Page 5.

⚠ Make sure that the Keylok USB Security dongle **IS NOT PLUGGED IN TO THE USB PORT OF YOUR COMPUTER** before continuing!

INSTALL "COMPATIBLE" KEYLOK DONGLE DRIVERS FOR WINDOWS 11 (continued)

1 You will need to download the current Installer application for the KEYLOK Dongle Drivers from the Leukobyte public downloads folder on our Google Drive, or from the Keylok website.

`leuko.site/Dongle-Drivers`

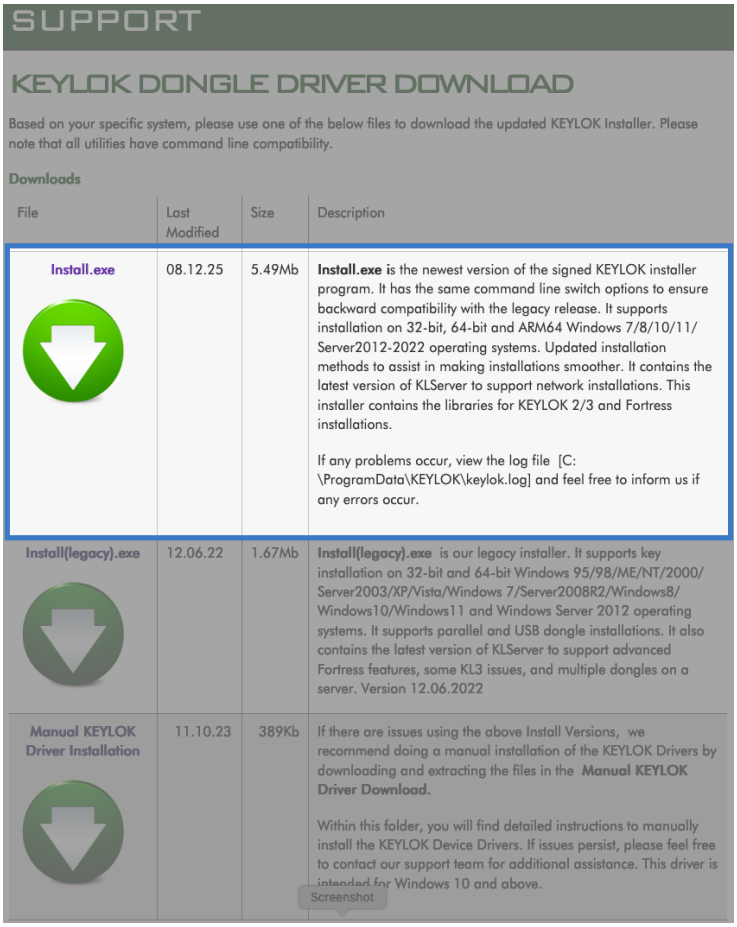
or from the Leukobyte public downloads folder on our website:

`leuko.site/public-downloads`

If you prefer, you can download the driver installer from Keylok's website. ***Make sure to download the newest driver, and NOT the legacy driver.*** The latest driver may have a date newer than the one shown below.

Here is the link to download from Keylok's website:

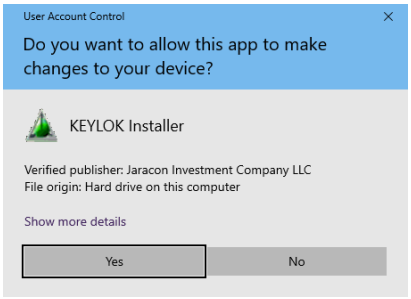
`https://www.keylok.com/support/install-utility-download`



INSTALL "COMPATIBLE" KEYLOK DONGLE DRIVERS FOR WINDOWS 11 (continued)

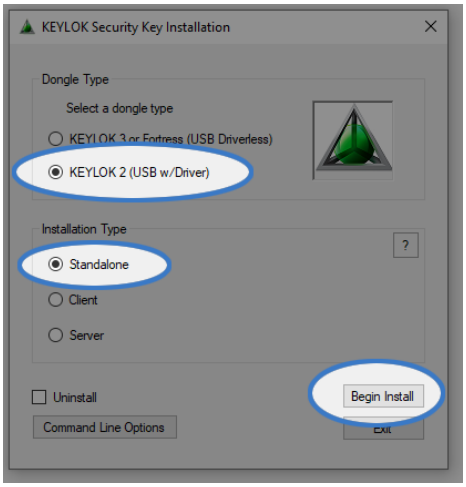
2 Run the installer application that you downloaded in Step 1. The file that you downloaded may need to be unzipped first. *You may need to run the installer as an Administrator on your system.* Click "Yes" in the dialog shown below to allow installation of the driver.



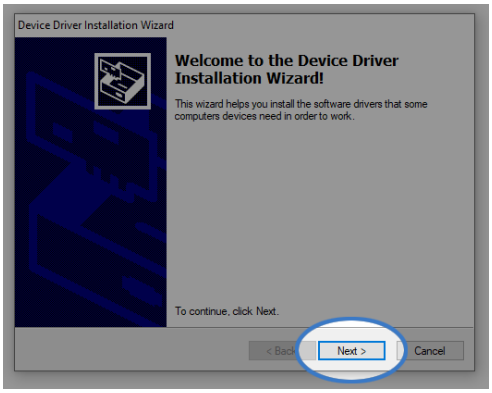


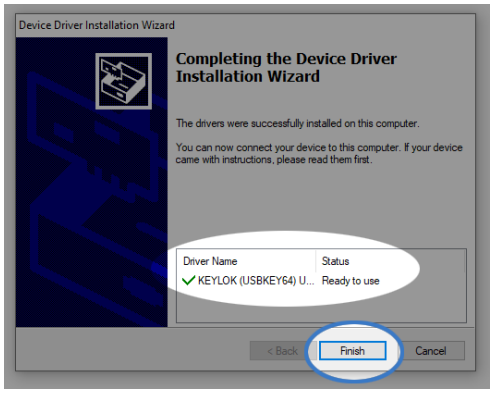
3 In the installation dialog, select **Dongle Type = KEYLOK 2 (USB w/ Driver)**
Installation Type = Standalone

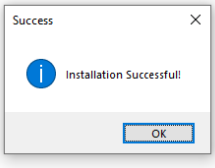
then click "Begin Install".



4 Click through the installation wizard panels to install the driver.







INSTALL "COMPATIBLE" KEYLOK DONGLE DRIVERS FOR WINDOWS 11 (continued)

5 Installation complete. **REBOOT YOUR COMPUTER NOW!**

6 Attach your USB security dongle into your computer's USB connector.

Give Windows a minute to associate the dongle device with the newly-installed driver. This is only necessary immediately after installing new drivers.

7 Launch Cytopaint.

8 If Cytopaint is unable to communicate with the security dongle you will see the dialog below. If this happens, first try rebooting your computer again to see if that fixes the problem. If the it persists after rebooting, please perform the procedure to manually uninstall all Keylok drivers on page 5, then reinstall the compatible Keylok drivers again. You do not need to reinstall the Cytopaint application in this case.

Make sure you follow the procedures EXACTLY in the order presented in this document.

If you still have issues, please contact us at support@leukobyte.com for assistance.

