
Industrial IoT

**Advantech GPIO
Windows KMDF Driver
User Manual
For Windows**

Version <1.01>

Advantech GPIO Windows KMDF Driver	Version: <1.01>
User Manual	Date: <10/31/2023>

Revision History

Date	Version	Description
2023/10/31	1.01	Programming use EAPI (install Platform SDK)
2023/03/16	1.00	1. Software Utility 2. Installation
2022/07/05	0.92	Change the format of revision history
2016/08/16	0.91	Update hyperlinks
2016/02/24	0.90	Initial draft

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User Manual

1. Welcome to Advantech GPIO Windows KMDF Driver

1.1 About This Manual

This manual contains the information for getting started with the Advantech GPIO Windows KMDF Driver.

1.2 Organization of This Manual

This user manual is divided into the following sections:

- [Welcome to Advantech GPIO Windows KMDF Driver](#)
- [Advantech GPIO Windows KMDF Driver Overview](#)

Welcome to Advantech GPIO Windows KMDF Driver

This section gives you a basic concept of this manual.

Advantech GPIO Windows KMDF Driver Overview

This section gives you a basic concept of Advantech GPIO Windows KMDF Driver.

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2. Advantech GPIO Windows KMDF Driver Overview

The Advantech GPIO Windows KMDF Driver provides functions to maximize the hardware's performance. It is freely bundled with the Advantech GPIO Device.

The driver allows you to easily perform versatile GPIO operations in programs developed with tools like Microsoft Visual C++ 6.0, Visual C++ 2015 (Smart Device), and other programming languages in different Windows operating systems. By using this Driver, you don't have to use hardware-specific register commands.

The driver also provides a sample application. You can modify the sample application to meet your needs.

The usage of KMDF is in the following aspects:

- **Driver Installation**

You can refer to [Install KMDF Driver](#) to install the driver.

- **Driver Uninstallation**

You can refer to [Uninstall KMDF Driver](#) to uninstall the driver.

- **Development Kit Installation**

None.

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2.1 Environments

2.1.1 GPIO

2.1.1.1 Hardware

It supports only Advantech IAG x86 hardware platform products with GPIO design; please see the release notes to check the support list before using it.

2.1.1.2 Operating Systems

- Windows Embedded Standard 2009
- 32-bit/64-bit Microsoft Windows 7/8/8.1/10
- 32-bit/64-Bit Windows Embedded Standard 7
- 32-bit/64-Bit Windows Embedded 8 Standard
- 32-bit/64-Bit Windows Embedded 8.1 Industry Pro
- 32-bit/64-Bit Windows 10 Enterprise 2015 LTSC

2.1.1.3 Common Driver

The GPIO Driver is based on common driver (AdvCOMMON).

2.2 Product Features

The Advantech GPIO Windows KMDF driver mainly includes the following features:

- **GPIO Information:**
 - **GPIO Count:**
Driver will enumerate GPIO and counts the total number of GPIO pins.
 - **GPIO Direction:**
Gets the current direction setting of each GPIO pin. Input(1) or Output(0)
 - **GPIO Status:**
Reads the current status of each GPIO pin. 1-On/High or 0-Off/Low.

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- **GPIO Configuration**
 - **GPIO Direction Control**

GPIO can be configured as either Input (1) or Output (0).
 - **GPIO Status Configuration**

Programming the 1-On/High or 0-Off/Low status of the output type GPIO.

- **GPIO Tool Example Source Code**
 - A tool to control GPIO.

You can use it to configure the GPIO.
 - Example programs

The example programs can be used for the reference of software development.

2.3 Installation

2.3.1 Install KMDF Driver

Installation is required. If there is no existing installation of Advantech GPIO Windows KMDF driver on your computer, take the following steps to install Advantech GPIO Windows KMDF driver.

How to install Advantech GPIO Windows KMDF driver

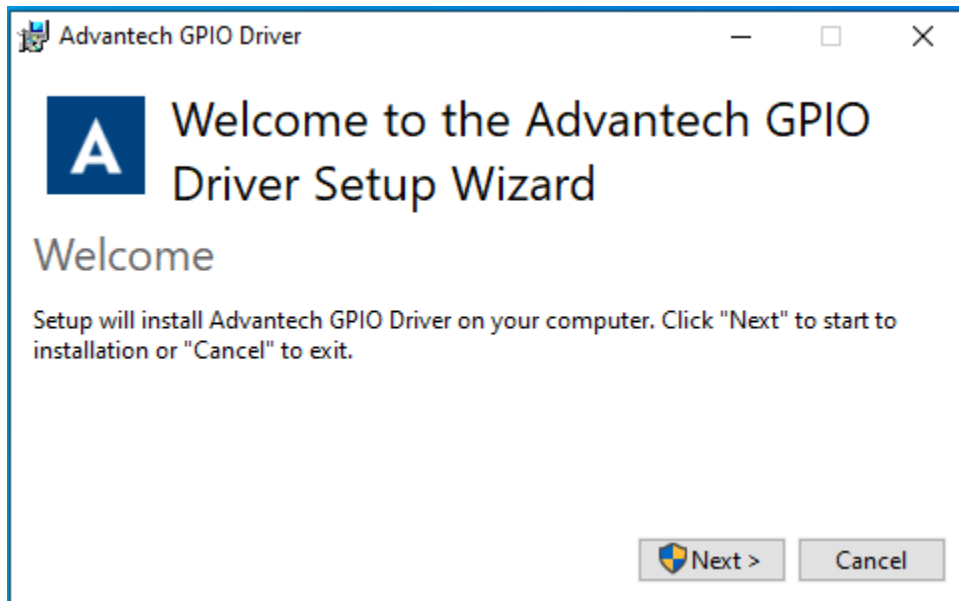
- 1) Verify that your computer meets the hardware and software requirements to run Advantech GPIO Windows KMDF driver.

For more information, see [Environments](#).
- 2) If you do not already have a copy of the installer Advantech GPIO Windows KMDF driver, download the installer.
- 3) From Control Panel, remove any existing installation of Advantech AdvEC driver and GPIO driver from your computer.
- 4) With administrator-level privilege on your computer, run the installer for Advantech GPIO Windows KMDF driver.

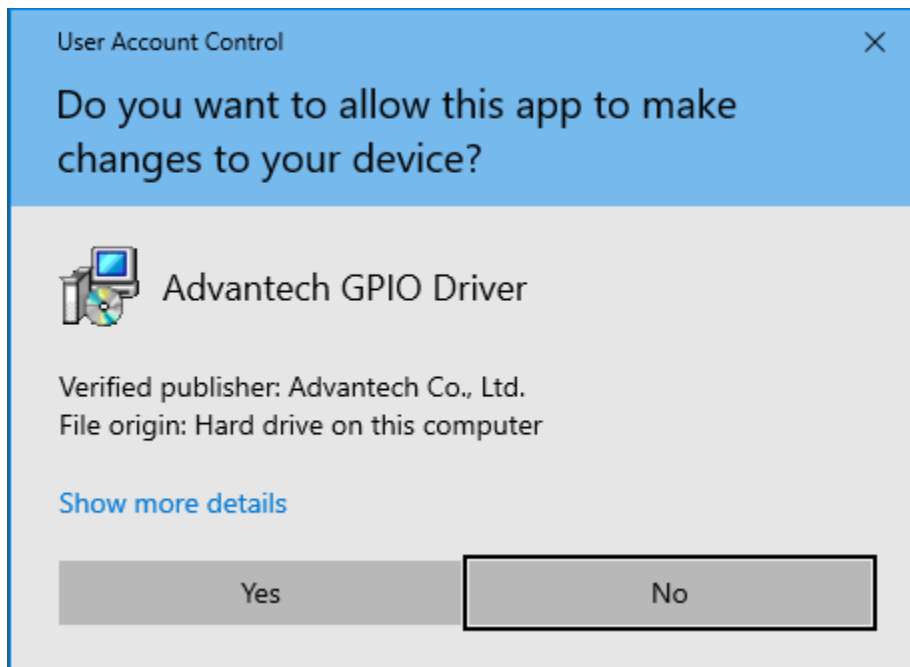
Below is an example of Advantech GPIO Windows KMDF driver Setup. If you want to stop the setup, press the "Cancel" button in the setup program. The Setup program will stop the procedure automatically.

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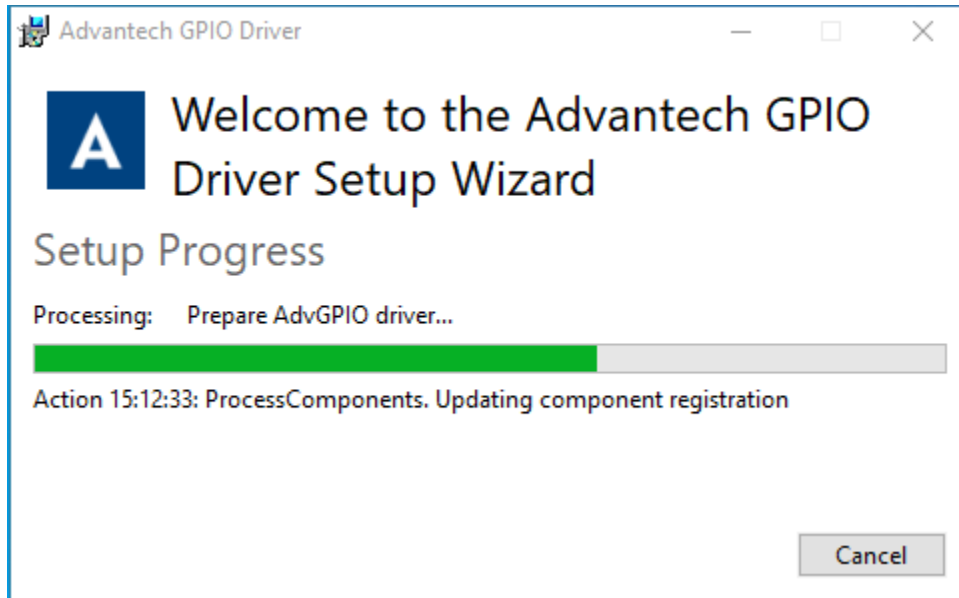
1. Run the Setup program.
2. When the setup program is running, click the "Next" button.



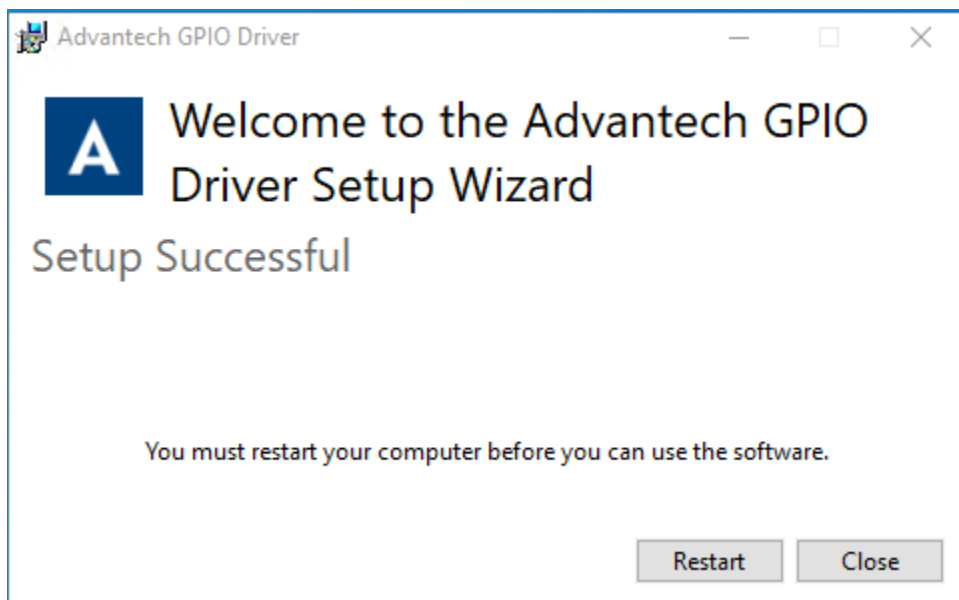
3. Allow this app to make changes, answer "YES". And wait for completion.



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4. Click the "Restart" button to finish the installation of Advantech GPIO Windows KMDF driver.



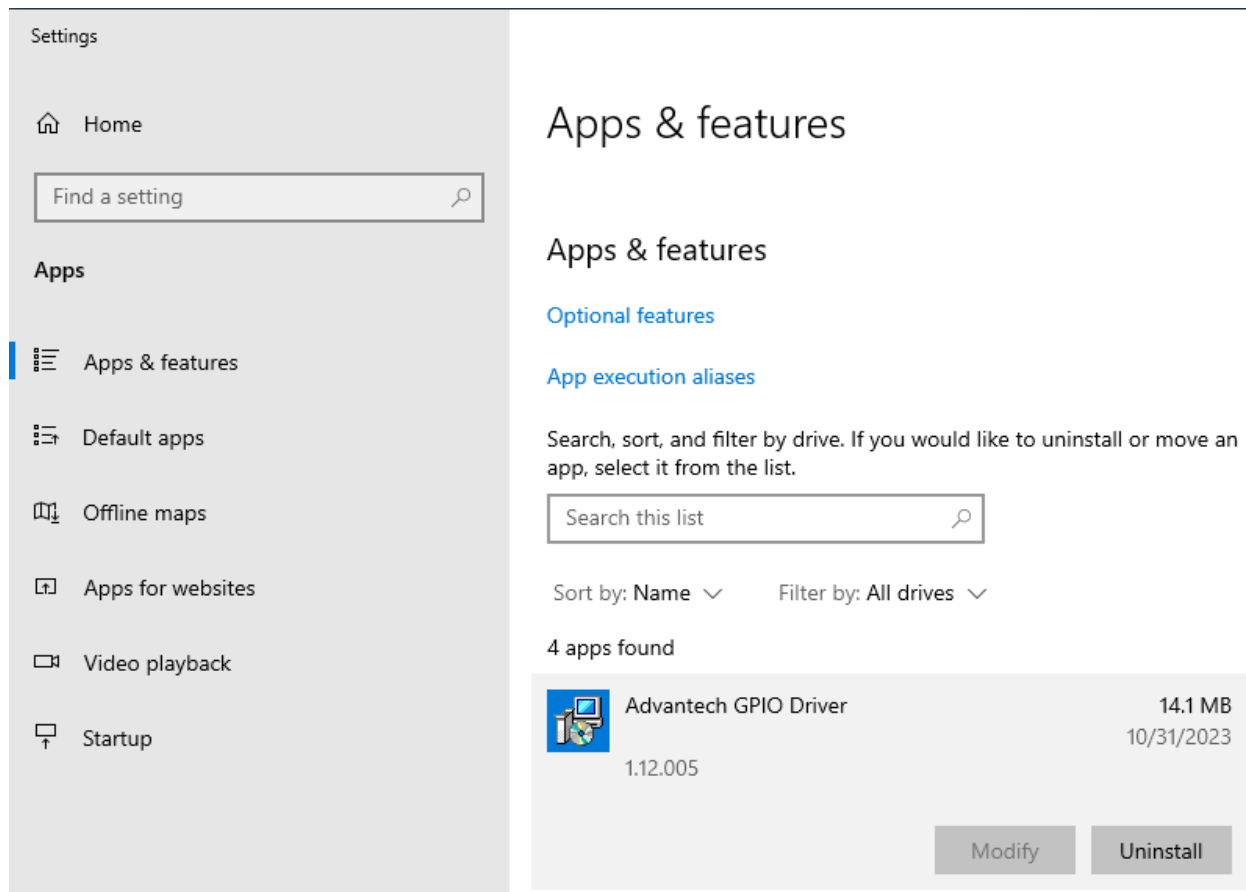
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2.4 Uninstallation

2.4.1 Uninstall KMDF Driver

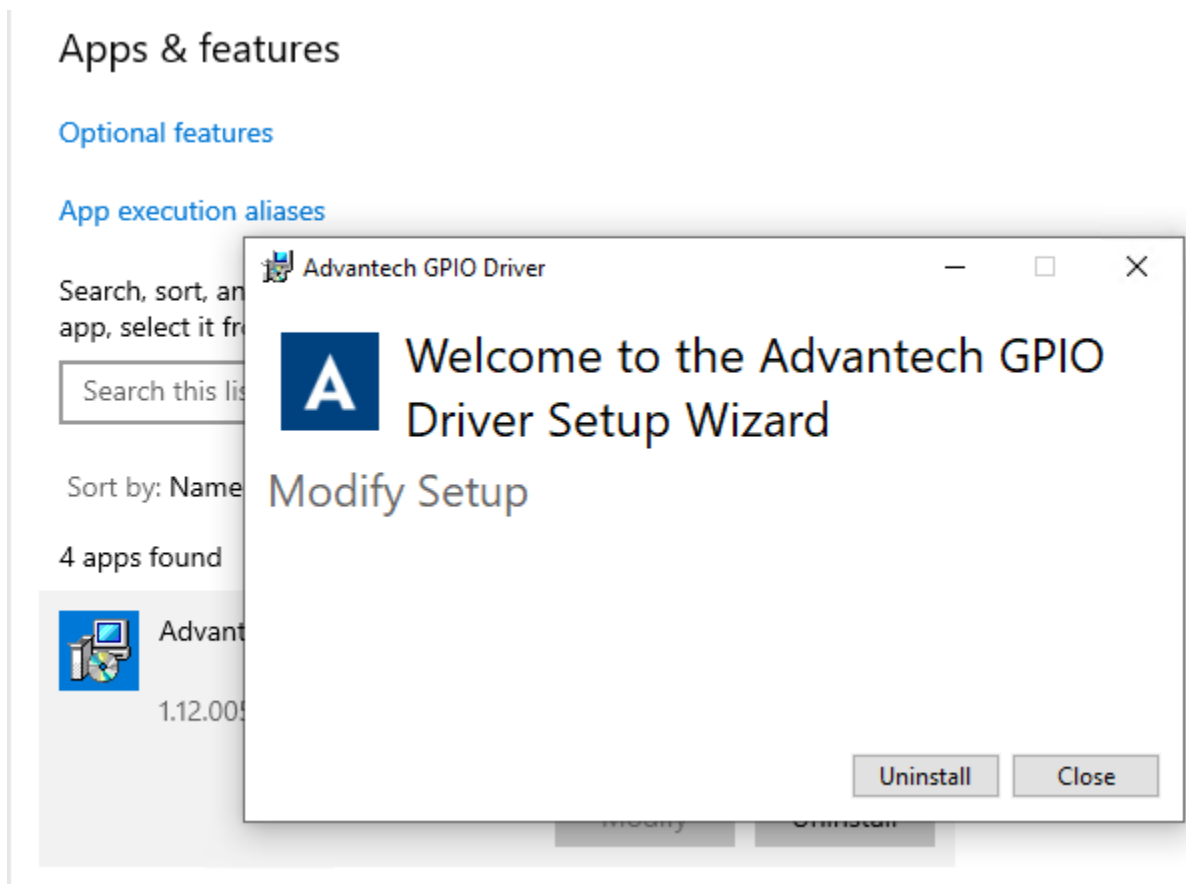
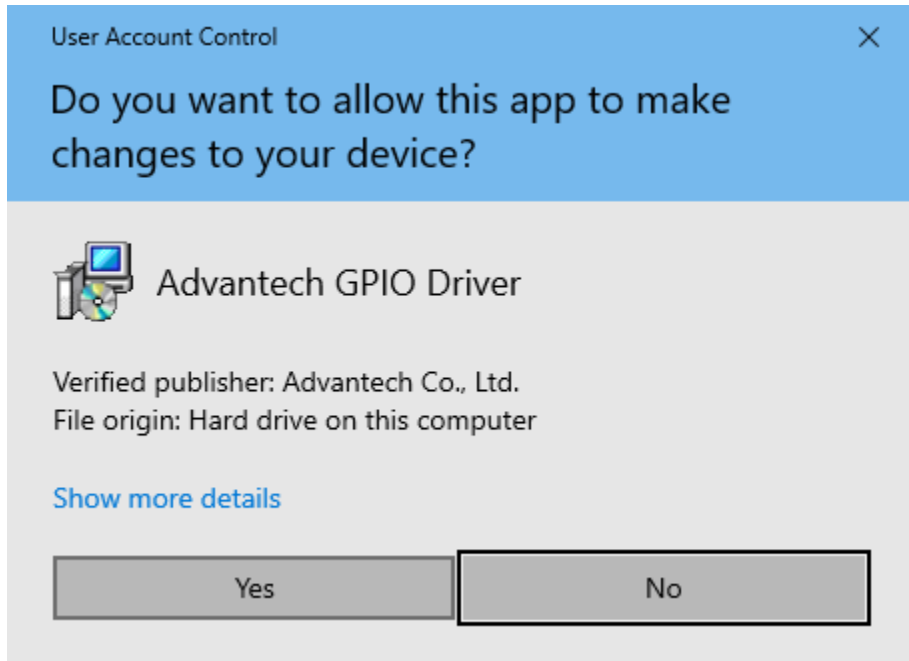
How to uninstall Advantech GPIO Windows KMDF driver

1. Control panel ->"App & features". Choose the Advantech GPIO Driver to Uninstall it.



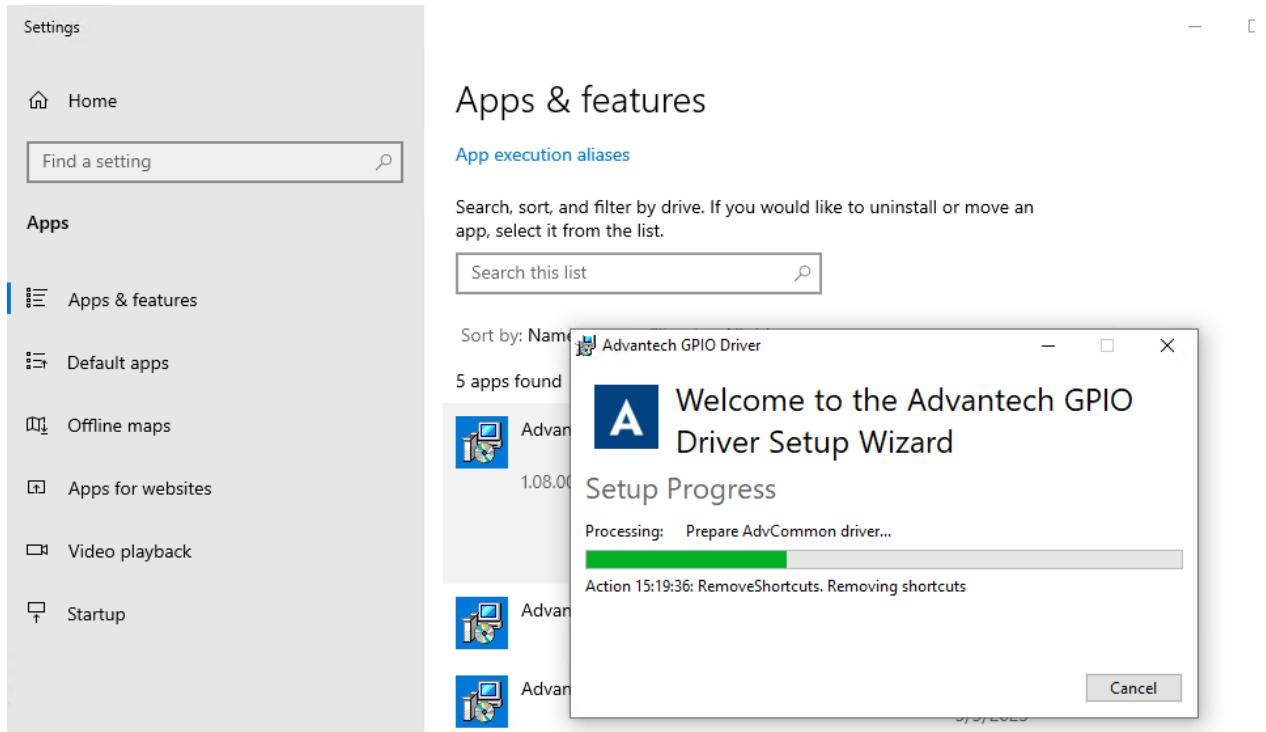
2. Allow this app to make changes ... , answer "Yes", then click "Uninstall"

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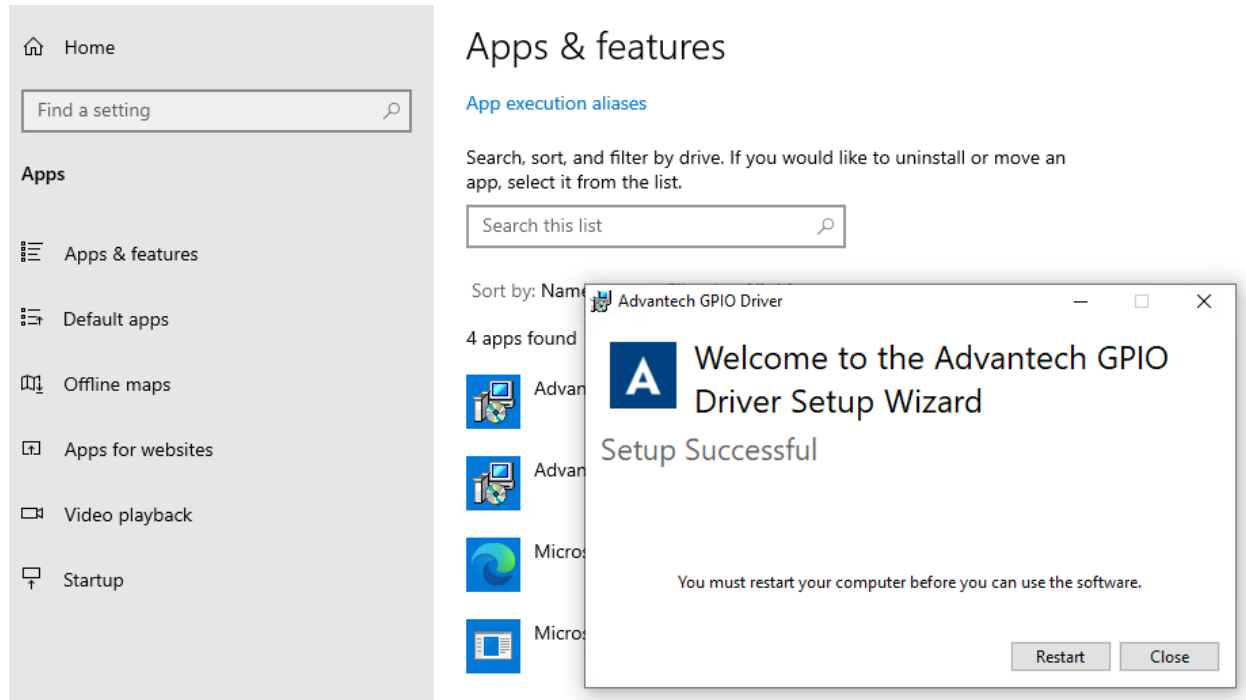
3. The uninstallation is running. Please wait for completion.

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4. Click the "Restart" button to finish the uninstallation of Advantech GPIO Windows KMDF driver.



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3. Programming Guide

You need to install "Platform SDK" package and reference EAPI Developer Guide.
(Chapter 7.GPIO Functions)

4. Advantech GPIO Utility

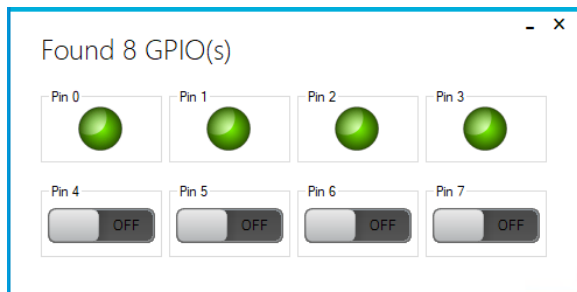
KMDF Source code (need to install PlatformSDK)

The sample code is located in the C:\Program Files\Advantech\PlatFormSDK\Sample\GPIO_Sample directory.

Binary File

File Name: GPIO Utility.exe

UI:



Pin0~n

There are up to n GPIOs and could control and monitor the direction (In / Out) and state (On / Off).

In/Out

"In/Out" button: The GPIO Utility will show the current direction of each GPIO and user can set Input(1) or Output(0) type of it.

On/Off

"On/Off" button: It will show the current status of each GPIO. If the GPIO is Output(0) type, user can set the status of the GPIO(1-On/High or 0-Off/Low). If the GPIO is Input(1) type, user can't change the status of the GPIO.