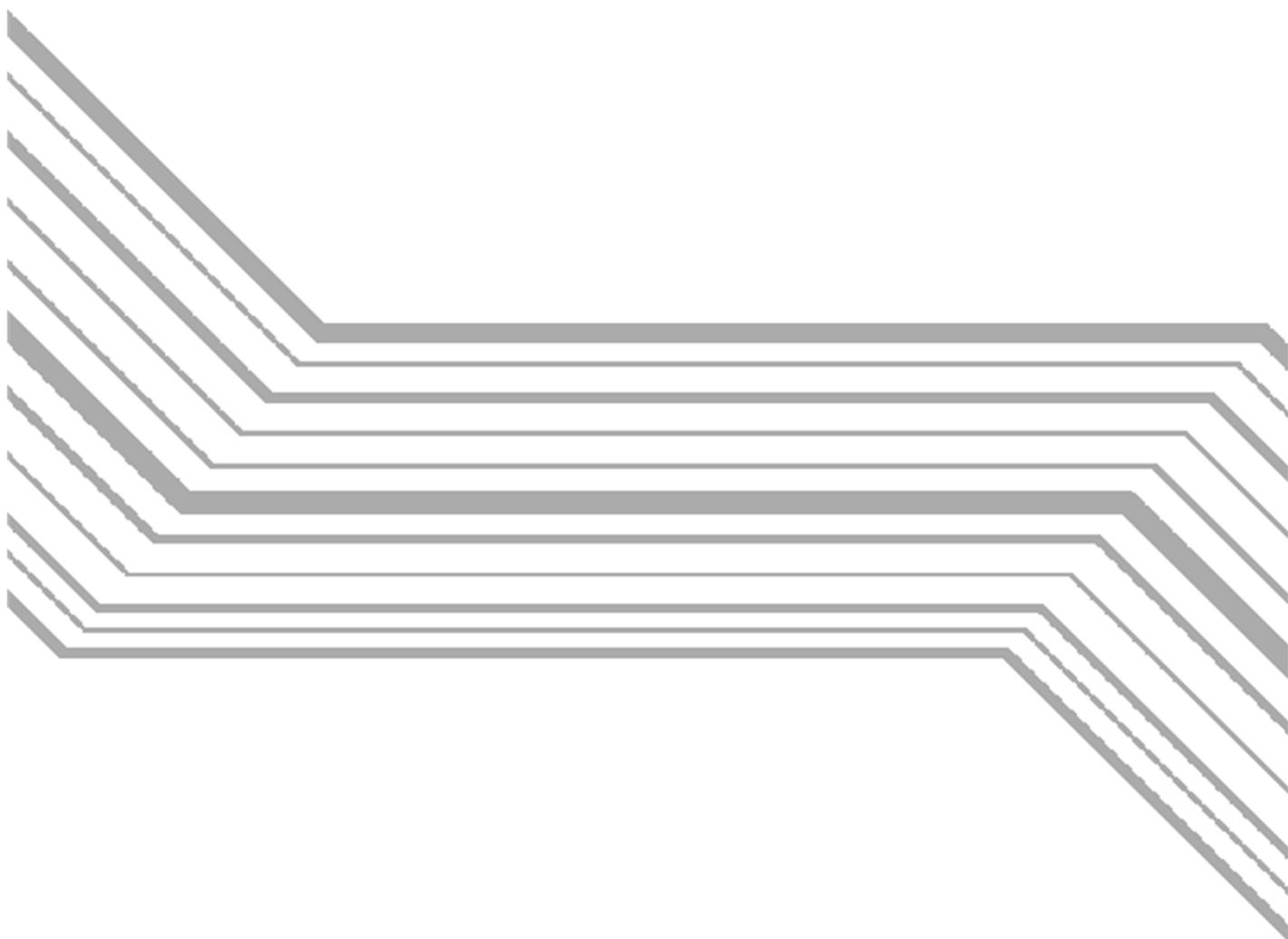


DENSO



Active USB-COM Port Driver

User's Guide

© DENSO WAVE INCORPORATED 2019

No part of this publication may be reproduced in any form or by any means without permission in writing from the publisher.

Specifications are subject to change without prior notice.

Windows is registered trademarks of Microsoft Corporation.

Other products and company names mentioned in this manual are trademarks or registered trademarks of their respective holders.

Preface

This manual describes installation/uninstallation and ancillary applications of Active USB-COM Port Driver.

Please read first before using devices those need Active USB-COM Port Driver.

■ Obtaining This Product and the Latest Information

This product and the latest information can be obtained by accessing the below URL.

<https://www.denso-wave.com>

Those customers who have purchased DENSO WAVE products can obtain more detailed information from our exclusive Web site for registered users (QBdirect). Please refer to the following URL.

<https://www.denso-wave.com>

■ Related Publications

Operator's Guide and User's Manual of the USB devices made by DENSO WAVE that use Active USB-COM Port Driver.

■ Screen Indication

The lettering in the screens in this manual is a little different from that in the actual screens. Device names used are only for description purpose, so they will not appear if you have not set devices having those names.

■ Intellectual Property Precaution

DENSO WAVE INCORPORATED ("DENSO WAVE") takes reasonable precautions to ensure its products do not infringe upon any patent or other intellectual property rights of other(s), but DENSO WAVE cannot be responsible for any patent or other intellectual property right infringement(s) or violation(s) which arise from (i) the use of DENSO WAVE's product(s) in connection or in combination with other component(s), product(s), data processing system(s) or equipment or software not supplied from DENSO WAVE; (ii) the use of DENSO WAVE's products in a manner for which the same were not intended nor designed; or (iii) any modification of DENSO WAVE's products by other(s) than DENSO WAVE.

■ Limited Warranty on Software Products

In no event will DENSO WAVE be liable for direct, indirect, special, incidental, or consequential damages (including imaginary profits or damages resulting from interruption of operation or loss of business information) resulting from any defect in the software or its documentation or resulting from inability to apply the software or its documentation.

Contents

PREFACE	II
CONTENTS	III
1. OVERVIEW OF ACTIVE USB-COM PORT DRIVER	1
1.1 Usage environment	1
1.2 Features	1
1.3 Notice	2
2. INSTALLATION	4
2.1 How to install Active USB-COM Port Driver	4
2.1.1 Double-click "install.exe" to execute.....	5
2.1.2 Start "install.exe" from command prompt.....	7
2.1.3 Start "install.exe -P n" (n: COM port number) from command prompt.....	8
2.1.4 Start "install.exe -C x" (x: the number of COM ports) from command prompt..	8
2.1.5 Start "install.exe -S" from command prompt	9
2.1.6 Start "install.exe -P n -S" (n: COM port number) from command prompt	9
2.1.7 Start "install.exe -C x -S" (x: The number of COM ports) from command prompt	9
2.1.8 Return value when executed from command prompt	10
3. LOAD/UNLOAD	12
3.1 About driver configuration of Active USB-COM port driver	12
3.2 Driver for virtual COM port "dwserial.sys"	12
3.2.1 Load.....	12
3.2.2 Unload	12
3.3 Driver for USB "dwusb.sys"	12
3.3.1 Load.....	12
3.3.2 Unload	12
3.4 Relationship between USB port and virtual COM port.....	13
3.5 Checking connection of USB device	13
3.6 Changing COM port number	13
4. UNINSTALLATION	14
4.1 How to uninstall Active USB-COM Port Driver	14
4.1.1 Execute from "Apps and Features"	15
4.1.2 Start "DNWA_AUSBD_Uninstaller.exe" from command prompt.....	17
4.1.3 Start "DNWA_AUSBD_Uninstaller.exe -S" from command prompt.....	17
4.1.4 Return value when executed from command prompt	18
5. LOG INFORMATION	19
5.1 Log Type.....	19
5.2 How to prohibit taking driver's execution history	20
5.3 How to prohibit taking driver's state history.....	20
6. HOW TO CHECK CONNECTED USB DEVICE	21
6.1 How to check command response from USB device.....	21
6.2 How to check registry information	21
7. ANCILLARY APPLICATIONS	23
7.1 COM port addition tool	23

7.2	Log collection tool.....	24
7.3	Device connection check tool.....	26
7.4	Device reconnection tool.....	27
8.	WHEN YOU'RE IN TROUBLE.....	28
8.1	Occurred the non-opened error code during installation.....	28
8.2	Occurred the non-opened error code during uninstallation.....	28
8.3	Doesn't recognize the device even after running Device reconnection tool	29
8.4	Doesn't output the reading data	29
8.5	Wants to uninstall automatically the version 2.1.0.3 or before.....	30
8.6	Occurred the digital signature error of the driver in Windows 7	30
8.7	Notice about Windows Update	30

1. Overview of Active USB-COM Port Driver

This section describes the overview of Active USB-COM Port Driver.

1.1 Usage environment

■ Checked Windows OS (When the issue of this edition)

The operations of the following Windows OS have been checked with Active USB-COM Port Driver.

Windows 7 (32 bit/ 64 bit)

Windows 8.1 (32 bit/ 64 bit)

Windows 10 (32 bit/ 64 bit) Version 1709 (Enterprise/ Education)/

1803 (Enterprise/ Education)/

1809/ 1903/ 1909

Windows 10 IoT Enterprise 2016 LTSC (64 bit)

Windows 10 IoT Enterprise 2019 LTSC (64 bit)

TIP:

The latest and detailed information of the supported Windows OS can be obtained by accessing the below URL.

<https://www.denso-wave.com>

Windows 10 IoT Enterprise is a Windows 10 embedded OS. We tested it with our environment, but it does not guarantee your any operational environment. Please test in enough to be no trouble with your operational environment, and use it.

■ Usable DENSO WAVE USB Devices

Please refer to the following URL for DENSO WAVE USB devices that can use Active USB-COM Port Driver.

<https://www.denso-wave.com>

1.2 Features

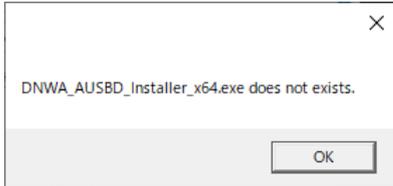
Active USB-COM Port Driver has following features.

- The USB device can be removed from and reconnect to the PC USB port while the application opens the Serial Port with which the USB device is connected. (It will be kept opening when the USB device is plugged into the USB Port again.)
- The Virtual Serial COM Port is always existed on PC even if the USB device is removed from the PC USB Port, so that the Serial Port can be opened anytime.
- On the Device Manager, the COM port is confirmed which port the USB device is connected with.

1.3 Notice

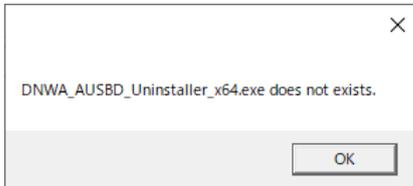
Precautions in using Active USB-COM Port Driver are as follows:

- Please install and uninstall the Active USB-COM Port Driver as the Administrator.
- About installation, after decompressing the compressed driver file downloaded from DENSO WAVE website (<https://www.denso-wave.com>), please run it as it is. If "install.exe" is moved and run, the following error message is displayed.

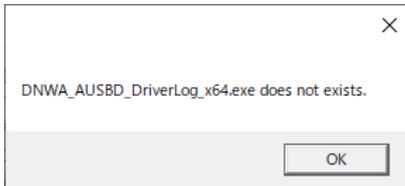


- About two tools ("driverlog.exe" and "uninstall.exe") in the Tools folder, after decompressing the compressed driver file downloaded from DENSO WAVE website (<https://www.denso-wave.com>), please run them as it is. If the exe file is moved and run, the following error message is displayed.

[In case of moving "uninstall.exe"]



[In case of moving "driverlog.exe"]



- Please uninstall the Active USB-COM Port Driver with "Apps and Features".

Note:

- Please don't delete the Active USB-COM Port Driver with the Device Manager.
- Please stop the application with the COM port allocated by the Active USB-COM Port Driver before uninstalling the driver.
- After the installed Active USB-COM Port Driver into PC is uninstalled, please update it of the new version.
- DENSO WAVE USB device can be removed and plugged into PC during communication. (COM port is opened.) However, communication data are lost while the USB device is removed. Please recovery the lost data with your application.
- The multiple use of DENSO WAVE USB device is available when this driver is installed at the multiple times. However, this driver cannot be individually uninstalled. (All the installed drivers are uninstalled at one time.)
- DENSO WAVE USB device may not be connected if the fast startup function with Windows 8.1 or later is set. In that case, please set "Turn on fast startup" to "OFF" at the Windows Control Panel "Power Options" utility, restart the PC.

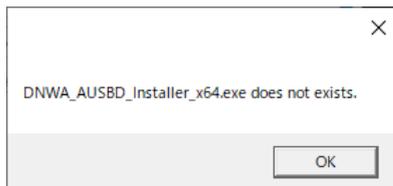
- Windows standard driver “usbser.sys” will be loaded if you inserted DENSO WAVE USB device in the USB port of the PC with Windows 10 or Windows 10 IoT Enterprise which does not install Active USB-COM Port Driver. DENSO WAVE USB device does not support the operation with the Windows standard driver “usbser.sys”. Please use it after installing Active USB-COM Port Driver by all means. And please stop the application with the COM port allocated by the Windows standard driver “usbser.sys” before installing the Active USB-COM Port Driver.
- After the installation or uninstallation is finished, Windows may display the PC restart request message. In that case, please follow it.

2. Installation

This section describes how to install Active USB-COM Port Driver.

Note:

- After decompressing the compressed driver file downloaded from DENSO WAVE website (<https://www.denso-wave.com>), please install it as it is. If "install.exe" is moved and run, the following error message is displayed.



- Please install the Active USB-COM Port Driver as the Administrator.
- Before installing the driver, please be sure to stop applications that use the COM port allocated by the Windows standard CDC driver "usbser.sys".
- If a new device driver is started to search on Windows update site automatically, quite a bit of time for search is spent. The above problem may be improved with setting to skip the search of Windows Update. About setting it, comply with the OS specification.
- After the installation is finished, Windows may display the PC restart request message. In that case, please follow it.

2.1 How to install Active USB-COM Port Driver

There are the following procedures to install this driver.

- Double-click the file "install.exe".
- Start the file "install.exe" from the command prompt.

There are the following options for starting from the command prompt.

- Silent install.
- Specify COM port number.
- Specify the number of generated COM ports.

Please refer to each section for details.

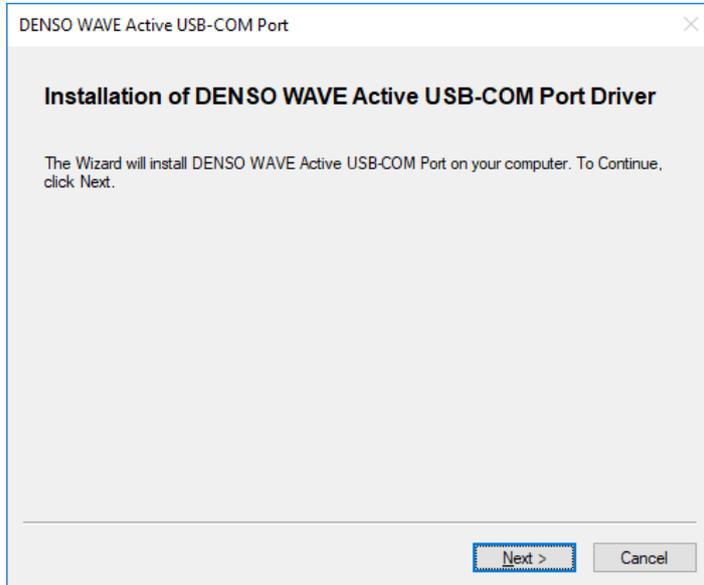
Note:

- Multiple USB ports cannot be assigned to 1 COM port.
- Making many COM ports may become the load the PC. Please confirm that you do not have any problem by test use.
- Depending on the PC, CU-921 and BHT-900B/BB (direct connection) may need the different COM ports.

2.1.1 Double-click “install.exe” to execute

In this procedure, one COM port is generated at the lowest available number in COM port number 3 or later managed by the PC. The installation procedure is as below.

- 1) Execute “install.exe”. If the user account control message window is displayed, click “Yes” button.
- 2) The following wizard dialog is displayed. Then click “Next>” button.

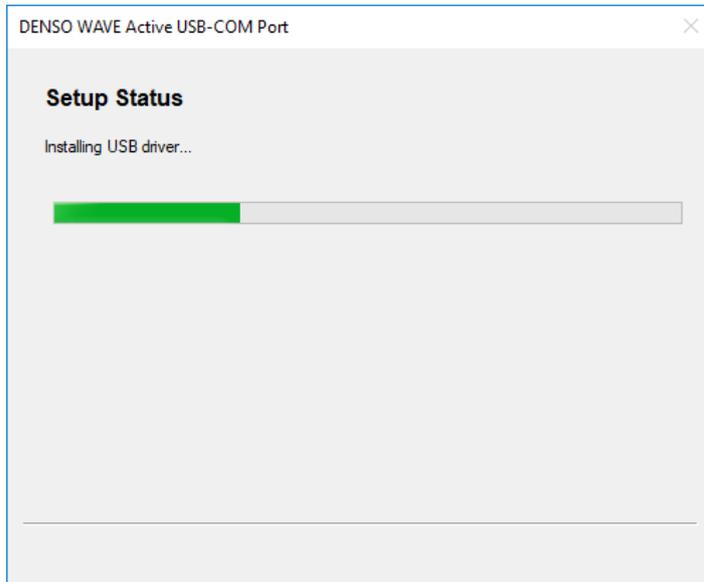


- 3) Installation is progressed.

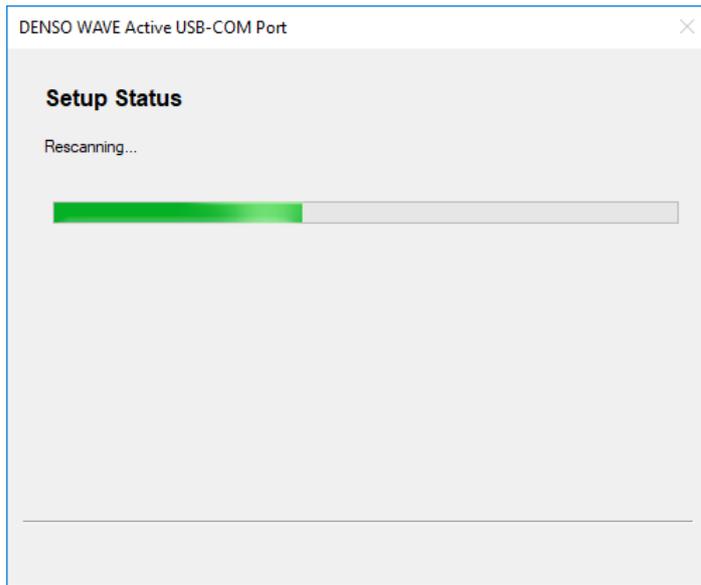
Note:

- The progress bar may not advance as shown below, please do not force-quit this program.

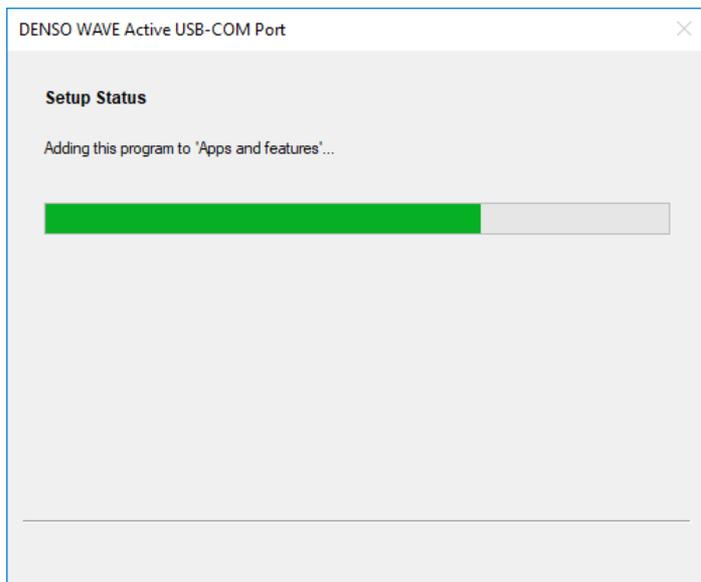
[During driver installation]



[During device rescan]



[During "Apps and Features" information registration]



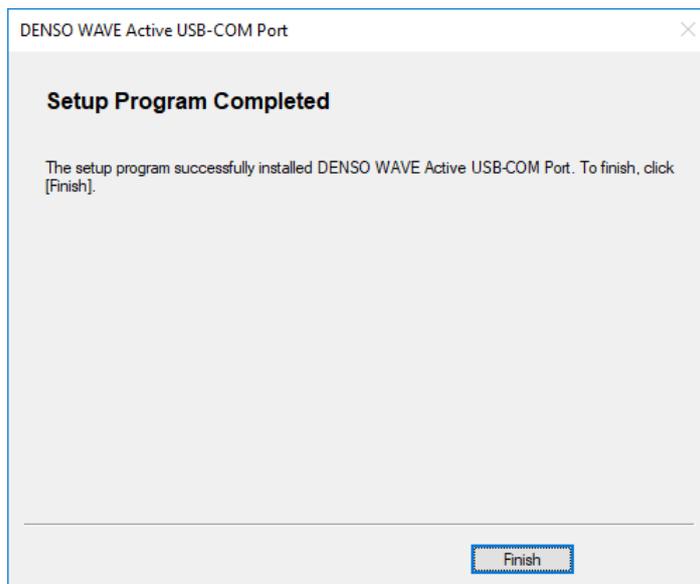
For Windows 8.1 or before, when the installation is started, the following message window might be displayed. Please click "Install" button.



And then, the following message window might be displayed. Please click "Install" button.



4) The following completion dialog comes out. Then click "Finish" button.



2.1.2 Start "install.exe" from command prompt

Because it is the same as [Section 2.1.1](#), please refer to it.

[Format example]

```
> start /wait install.exe
```

TIP:

Set the execution path of command prompt is moved to the folder where "install.exe" exists.

[Return value]

See [Section 2.1.8](#).

2.1.3 Start "install.exe -P n" (n: COM port number) from command prompt

In this procedure, one COM port is generated by specifying the COM port number n.

This procedure is effective when you decide the COM port number uniformly and operate it.

The option "-P" can be used with "-p".

[Format example]

```
> start /wait install.exe -P 10
```

TIP:

Set the execution path of command prompt is moved to the folder where "install.exe" exists.

Note:

- The COM port number that can be specified is 3 to 256.

[Return value]

See [Section 2.1.8](#).

2.1.4 Start "install.exe -C x" (x: the number of COM ports) from command prompt

In this procedure, specify the number of COM ports x that you want to generate, and generate x COM ports starting from the lowest available number in COM port number 3 or later managed by the PC. This procedure is effective when it is known to connect and use multiple USB devices from the stage of system construction.

The option "-C" can be used with "-c".

Note:

- The relationship between the USB port and the COM port is determined by Windows. Therefore, if you do this while some USB devices are inserted, the relationship between the USB device, USB port and COM port may not be as you expect. If your application was created with a fixed USB device, a USB port and a COM port, use one of the following methods.
 - Run this method with all of the USB devices unplugged. Then insert the USB devices in order.
 - Complete the installation and the USB device insertion one by one.
- In case of the driver's re-installation and version up, the above rule applied.

[Format Example]

```
> start /wait install.exe -C 2
```

TIP:

Set the execution path of command prompt is moved to the folder where "install.exe" exists.

[Return value]

See [Section 2.1.8](#).

2.1.5 Start "install.exe -S" from command prompt

In this procedure, the silent installation is performed. This procedure is effective when performing updates remotely or in situations where workers cannot execute it. After installation starts, the screen will not be displayed at all, so check the return value and confirm success / failure.

The option "-S" can be used with "-s".

Note:

- When using it with Windows 7, please apply after updating the following Microsoft files.
KB3033929
KB2921916
- When executed on Windows 7 / 8.1, our certificate is registered as a "trusted issuer".

[Format Example]

```
> start /wait install.exe -S
```

TIP:

Set the execution path of command prompt is moved to the folder where "install.exe" exists.

[Return value]

See [Section 2.1.8](#).

2.1.6 Start "install.exe -P n -S" (n: COM port number) from command prompt

This is a combination of [Section 2.1.3](#) and [Section 2.1.5](#).

The order of options "-P" and "-S" is arbitrary.

[Format Example]

```
> start /wait install.exe -P 10 -S
```

TIP:

Set the execution path of command prompt is moved to the folder where "install.exe" exists.

[Return value]

See [Section 2.1.8](#).

2.1.7 Start "install.exe -C x -S" (x: The number of COM ports) from command prompt

This is a combination of [Section 2.1.4](#) and [Section 2.1.5](#).

The order of options "-C" and "-S" is arbitrary.

[Format Example]

```
> start /wait install.exe -C 2 -S
```

TIP:

Set the execution path of command prompt is moved to the folder where "install.exe" exists.

[Return value]

See [Section 2.1.8](#).

2.1.8 Return value when executed from command prompt

When executed from the command prompt, you can get the execution result. The following describes the main execution results and how to handle errors.

Error code	Error contents	How to handle
0(0x00)	Installation success	-
0(0x01)	PC reboot require	Reboot the PC according to the instructions of Windows.
2(0x02)	Option error	Check the description of the option code.
3(0x03)	Multiple execution error	After completing the running installation, execute it again.
5(0x05)	File configuration error (1)	After decompressing the compressed driver file downloaded from DENSO WAVE website (https://www.denso-wave.com), please install it as it is.
6(0x06)	File configuration error (2)	After decompressing the compressed driver file downloaded from DENSO WAVE website (https://www.denso-wave.com), please install it as it is.
7(0x07)	Driver version error	There is the different version driver in the PC. Uninstall it and then install this version driver.
9(0x09)	Error while using COM port	- The COM port assigned by the Windows 10 standard CDC driver "usbser.sys" is in use by the application. Close the COM port in the application and then install this version driver. -The COM port assigned by this driver is in use by the application. Close the COM port in the application and then install this version driver.
32(0x20)	Install error (driver for virtual COM port)	The driver "dwserial.sys" for the virtual COM port is aborted during installation. Reinstall from the beginning. TIP: Only Windows 7 or 8.1.
33(0x21)	Install error (driver for USB)	The driver "dwusb.sys" for the USB is aborted during installation. Reinstall from the beginning. TIP: Only Windows 7 or 8.1.
36(0x24)	File configuration error (3)	After decompressing the compressed driver file downloaded from DENSO WAVE website (https://www.denso-wave.com), please install it as it is.
39(0x27)	Cancellation by user	The installation has been canceled by the user. Please reinstall from the beginning.
40(0x28)	Specified COM port already existing error	The COM port number specified in the -p option is already in use. Check the COM port assignment status.

42(0x2A)	Interruption by PC reboot require	Installation was interrupted because Windows requests to restart. Please restart the computer and try installation again.
44(0x2C)	Not run as Administrator	The driver's Installation must be run as the Administrator. Check the authority of the user account.

3. Load/Unload

This section describes how to load and unload Active USB-COM port driver.

Note:

- It is the prerequisite that the installation in [Chapter 2](#) has been completed successfully.

3.1 About driver configuration of Active USB-COM port driver

This driver consists of the following two drivers:

- Driver for virtual COM port : dwserial.sys (resident driver)
- Driver for USB : dwusb.sys (plug and play driver)

3.2 Driver for virtual COM port "dwserial.sys"

3.2.1 Load

The driver "dwserial.sys" for virtual COM port will be loaded automatically:

- Immediately after installation on a PC.
- Immediately after PC startup.

3.2.2 Unload

The driver "dwserial.sys" for virtual COM port is a resident driver, so it will not be unloaded.

3.3 Driver for USB "dwusb.sys"

3.3.1 Load

The driver for USB "dwusb.sys" will be loaded:

- When installing with DENSO WAVE USB device inserted.
- When the PC is started up with DENSO WAVE USB device inserted.
- When DENSO WAVE USB device is inserted into USB port after PC startup.

Note:

- Even if DENSO WAVE USB device is still inserted into USB port, if Windows detects that DENSO WAVE USB device is inserted due to a change in the signal level of the USB data line due to disturbance noise etc, the loading will be performed.

3.3.2 Unload

The driver "dwusb.sys" for USB will be unloaded when DENSO WAVE USB device is disconnected from the USB port.

Note:

- Even if DENSO WAVE USB device is inserted in the USB port, if Windows detects that DENSO WAVE USB device has been disconnected due to a change in the signal level of the USB data line due to disturbance noise, the unloading will be performed.

3.4 Relationship between USB port and virtual COM port

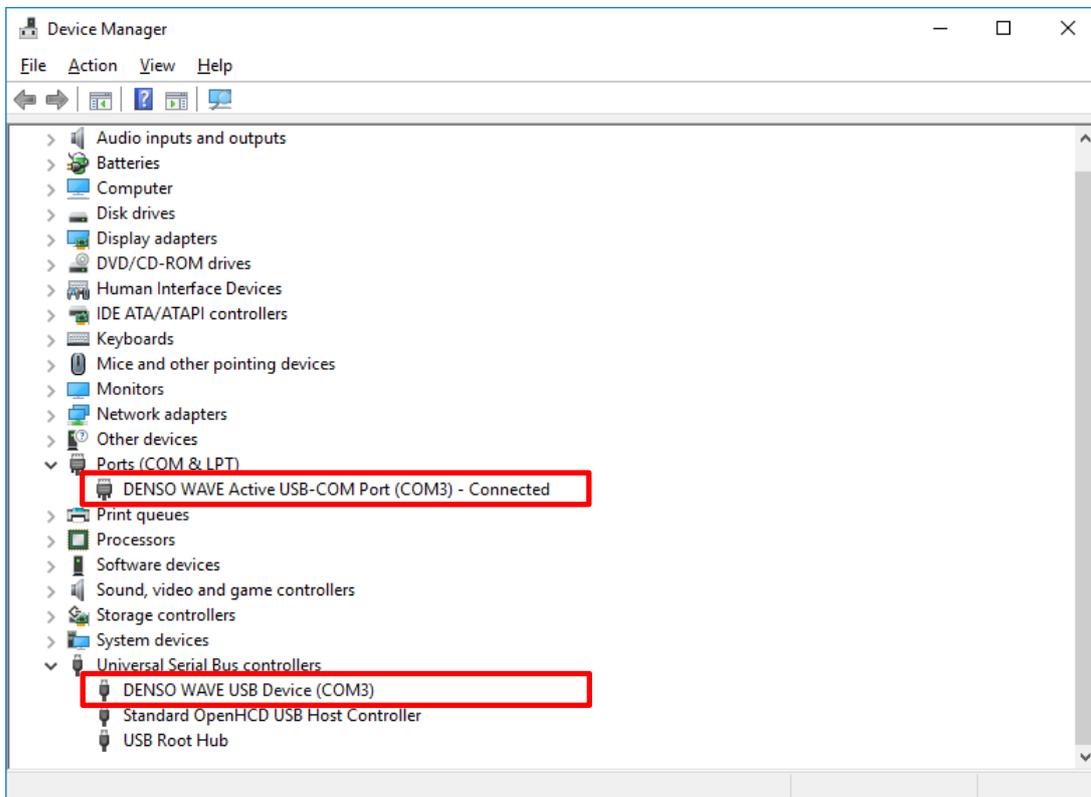
Immediately after installation in Chapter 2, when connecting DENSO WAVE USB device to the USB port for the first time and loading the USB driver "dwusb.sys", the USB port will be associated with the virtual COM port number which is prepared immediately after installation. Since then, its USB port can be used with the associated COM port number.

Note:

- If multiple COM ports are generated using option "-C", please perform the above procedure for each COM port.

3.5 Checking connection of USB device

Open the Device Manager. Then check "DENSO WAVE USB Device (COMx)" and "DENSO WAVE Active USB-COM Port (COMx) – Connected".



If you want to check this using a user program, please refer to [Chapter 6](#).

3.6 Changing COM port number

You can change the COM port number on the device manager.

Note:

- In case of changing a COM port number manually after installation, the unused COM port number that is equal to COM 1 or more than can be assigned.

You should change the COM port number after removing the device.

If you changed the COM port number, please restart the PC.

4. Uninstallation

This section describes how to uninstall Active USB-COM Port Driver.

Note:

- It is the prerequisite that the installation in [Chapter 2](#) has been completed successfully.
- Please close all applications that use the COM ports assigned with the driver before uninstalling it.
- Please uninstall the Active USB-COM Port Driver as the Administrator.
- Please don't delete the Active USB-COM Port Driver with the Device Manager.
- When two or more devices that use this driver for the same PC are installed, the driver uninstallation means uninstalling all USB devices that use the Active USB-COM Port Driver. So, you cannot remove a device selectively.
- After the uninstallation is finished, Windows may display the PC restart request message. In that case, please follow it.

4.1 How to uninstall Active USB-COM Port Driver

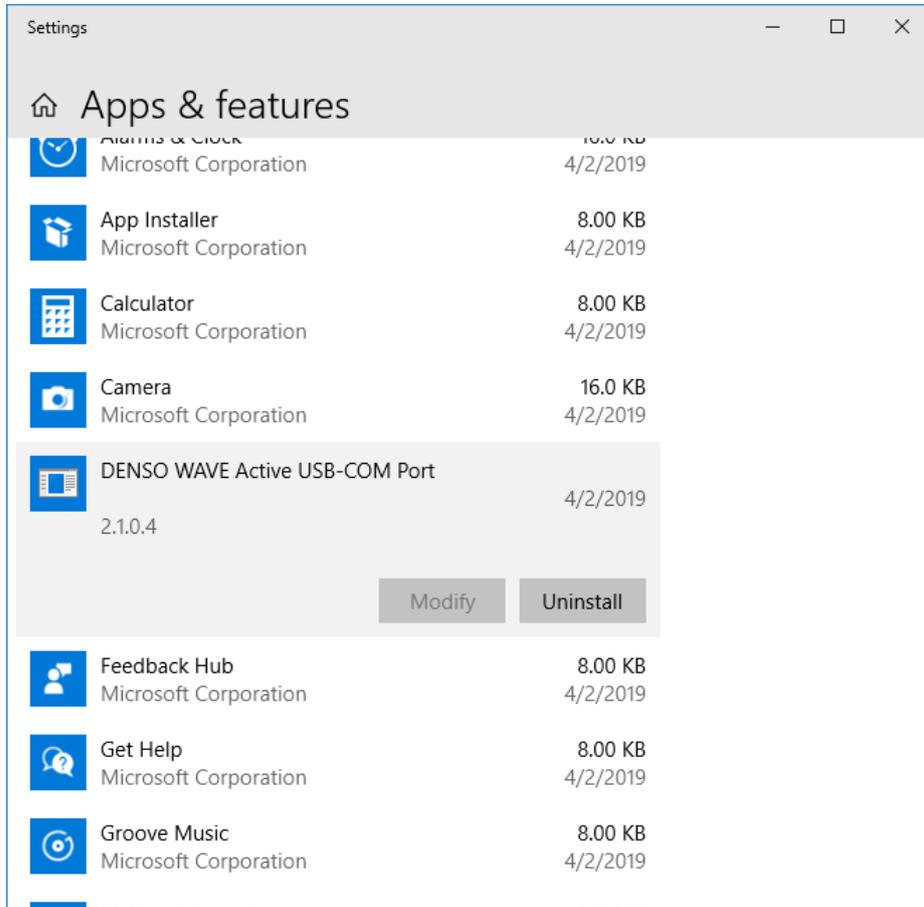
There are the following procedures to uninstall this driver:

- Execute from "Apps and Features".
- Execute by specifying the executable file "DNWA_AUSBD_Uninstaller.exe" from the command prompt.

In case of execution from the command prompt, the option of silent execution is prepared. Please refer to each section for details.

4.1.1 Execute from "Apps and Features"

- 1) Close all applications that use the COM ports assigned with the driver.
- 2) Select and uninstall "DENSO WAVE Active USB-COM Port" with "Apps and Features".

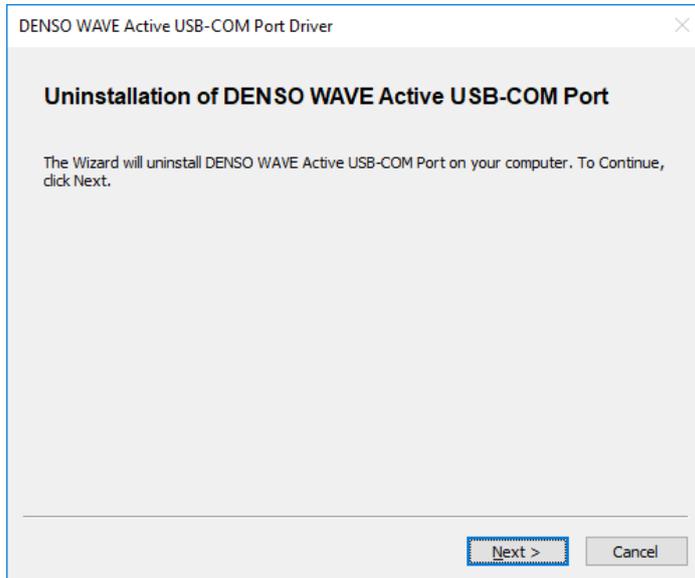


- 3) When preparation for uninstallation is completed, the following screen is displayed. Select "Next (N)".

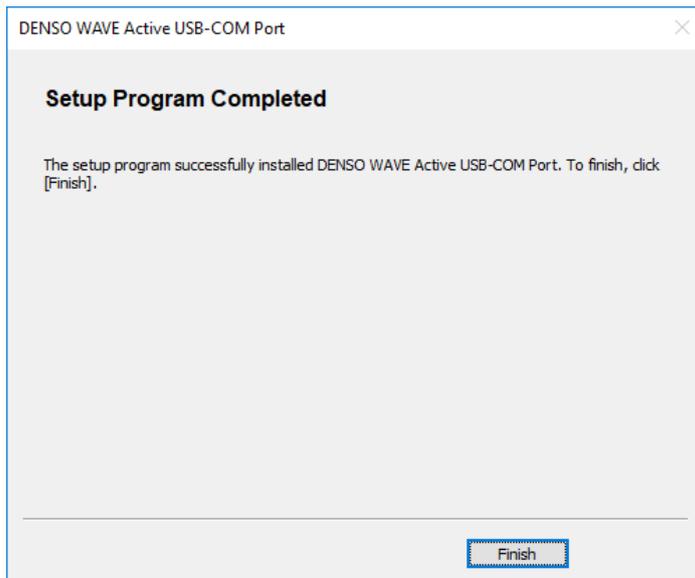
4) Uninstall the driver file is in progress.

Note:

- There is a case where the progress bar does not proceed, but please do not kill.



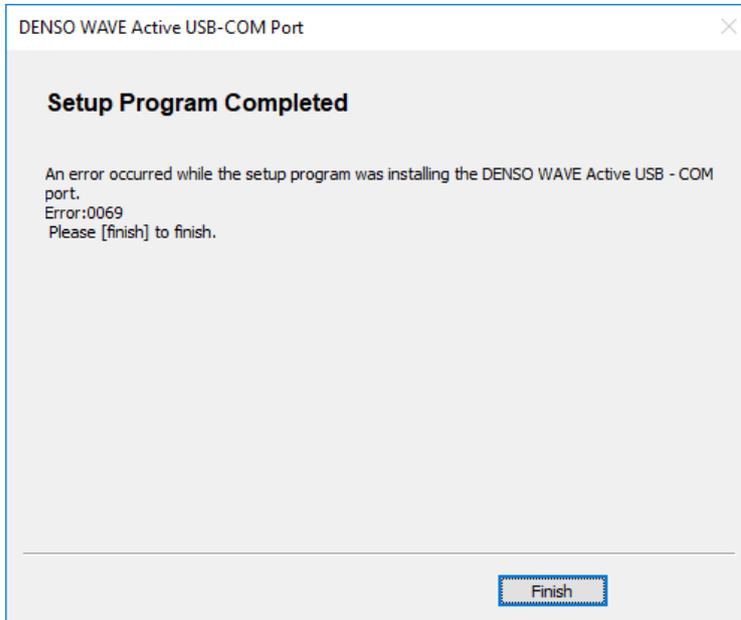
5) After uninstallation is finished, the following screen will be displayed. Select "Done".



Note:

- After uninstallation is finished, Windows may display PC restart request message. In that case, please follow it.

If an error occurs during uninstallation, an error is displayed as shown in the following screen. See [Section 4.1.5](#).



4.1.2 Start "DNWA_AUSBD_Uninstaller.exe" from command prompt

- 1) Exit the application that uses the COM port assigned by the driver. For the operation during uninstallation, see [Section 4.1.1](#).

[Format Example]

```
>start /wait "" "C:\Program Files\DENSO WAVE\Active USB-COM Port  
  \DNWA_AUSBD_Uninstaller.exe"
```

[Return value]

See [Section 4.1.5](#).

4.1.3 Start "DNWA_AUSBD_Uninstaller.exe -S" from command prompt

In this method, silent uninstallation is performed. This method is effective when performing updates remotely or in situations where workers cannot execute them. After starting to uninstall, no screen will be displayed, so check the return value and confirm success/failure.

The option "-S" can be used with "-s".

[Format Example]

```
>start /wait "" "C:\Program Files\DENSO WAVE\Active USB-COM Port  
  \DNWA_AUSBD_Uninstaller.exe" -S
```

[Return value]

See [Section 4.1.4](#).

4.1.4 Return value when executed from command prompt

When executed from the command prompt, you can get the execution result. The following describes the main execution results and how to handle errors.

Error code	Error contents	How to handle
0(0x00)	Uninstallation success	-
0(0x01)	PC reboot require	Reboot the PC according to the instructions of Windows.
64(0x40)	Multiple execution error	After completing the running uninstallation, execute it again.
65(0x41)	Error while using COM port	The COM port assigned by this driver is in use by the application. Close the COM port in the application and then uninstall.
70(0x46)	Interruption by PC reboot require	Uninstallation was interrupted because Windows requests to restart. Please restart the computer and try uninstallation again.
71(0x47)	Not run as Administrator	The driver's uninstallation must be run as the Administrator. Check the authority of the user account.

5. Log Information

This section describes the logs of Active USB-COM Port Driver and the logs of the installation and uninstallation.

5.1 Log Type

The following table shows the logs and the destinations to save them of the Active USB-COM port driver.

Target		Type	Destination	Compliment
Install		Execution history	Event log (application)	
Uninstall		Execution history	Event log (application)	
Driver	"dwserial.sys" (for virtual COM port)	Execution history	c: \windows\system32\dwserial.etl	<ul style="list-style-type: none"> Up to 128MB. Overwrite every time when PC starts. Acquisition can be stopped (see Section 5.2).
		State history	Event log (system)	<ul style="list-style-type: none"> Added when a state change occurs. Acquisition can be stopped (see Section 5.3).
	"dwusb.sys" (for USB)	Execution history	c: \windows\system32\dwusb.etl	<ul style="list-style-type: none"> Up to 128MB. Overwrite every time when PC starts. Acquisition can be stopped (see Section 5.2).
		State history	Event log (system)	<ul style="list-style-type: none"> Added when a state change occurs. Acquisition can be stopped (see Section 5.3).
Registry		System Status	Registry information related to dwserial.sys and dwusb.sys (Ex: HKLM\System\CurrentControlSet\Enum\USB)	

The above log is recorded for the purpose of checking the occurrence status when any trouble occurs at the customer's PC. Please note that we may ask you to provide a set of the above logs, if you have any questions. See [Section 7.3](#) for how to obtain logs.

5.2 How to prohibit taking driver's execution history

While taking driver's execution history, the access to the HDD or SSD occurs. If you don't want the continual access to them, please execute the following steps.

1) Run a command prompt window as the Administrator.

2) Execute the following commands.

```
>reg delete HKLM\SYSTEM\CurrentControlSet\Control\WMI\Autologger\dwserial /f
```

```
>reg delete HKLM\SYSTEM\CurrentControlSet\Control\WMI\Autologger\dwusb /f
```

3) Reboot the PC.

Note:

- Please execute the above steps as the Administrator.
- Even if there is a trouble during operation, it may not be able to investigate in detail.
- After re-installing the driver, this function is re-permitted. Please execute the above steps.
- After running the Log collection tool (see [Section 7.2](#)), taking driver's execution history is restarted. If you want to prohibit taking driver's execution history and use the driver, please reboot the PC.

5.3 How to prohibit taking driver's state history

While taking driver's state history, writing to the Windows event log (system) occurs. If you don't want the continual writing to it, please execute the following steps.

1) Run a command prompt window as the Administrator.

2) Register the following keys and data in the registry

[dwserial]

Key : HKLM\SYSTEM\CurrentControlSet\Services\dwserial\Parameters

Data : EventLogEnable REG_DWORD 0

[dwusb]

Key : HKLM\SYSTEM\CurrentControlSet\Services\dwusb\Parameters

Data : EventLogEnable REG_DWORD 0

3) Reboot the PC.

Note:

- Please execute the above steps as the Administrator.
- Even if there is a trouble during operation, it may not be able to investigate in detail.
- After re-installing the driver, this function is re-permitted. Please execute the above steps.

6. How to check connected USB device

In addition to [Section 3.5](#), the connection status of DENSO WAVE USB device can be checked with the user program by the procedure described in the following section.

Note:

- In connection confirmation of DENSO WAVE USB devices using the following section, it is recommended to make judgment repeatedly several times.

6.1 How to check command response from USB device

Send a command from the PC application to the USB device, and then check its response from the USB device to the PC application.

For the scanners, use a command (no impact on operation) with the USB device specification.

For the barcode handy terminals, decide the some rules between the PC application and the USB device.

6.2 How to check registry information

Active USB-COM Port Driver manages the device connection status with the following registries. Refer to them and check the connected/disconnected USB device.

Note:

- Please refer only for these registries.

[Registries]

Key	HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Enum\Root\PORTS\nnnn (nnnn : Any four digits decided by Windows)
Entry	FriendlyName
Type	REG_SZ
Data	For connected : DENSO WAVE Active USB-COM Port (COMp) – Connected For disconnected : DENSO WAVE Active USB-COM Port (COMp) – Disconnected TIPS: After installation, no display "Disconnected". (p : COM port number)

Key	HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Enum\Root\PORTS\nnnn\Device Parameters (nnnn : Any four digits decided by Windows)
Entry	ComNumber
Type	REG_DWORD
Data	COM port number is indicated with four bytes. (ex.) Case of COM3 : 0x00000003

Key	HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Enum\Root\PORTS\nnnn\Device Parameters (nnnn : Any four digits decided by Windows)
Entry	ConnectStatus
Type	REG_DWORD
Data	Connection state is indicated with four bytes. For connected : 0x00000001 For disconnected : 0x00000000

7. Ancillary applications

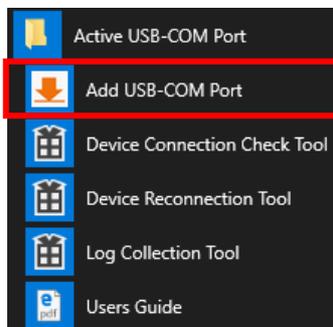
After installing the Active USB-COM port driver, the following ancillary applications will be registered in the Start menu. Details are described in each section, please use as needed.

- COM port addition tool
- Log collection tool
- Device connection check tool
- Device reconnection tool

7.1 COM port addition tool

If you add and operate DENSO WAVE USB device, one COM port will be added by running this tool.

1) Run "Add USB-COM Port" from the start menu.



See [Section 2.1.1](#) for the execution screen.

Note:

- After the installation is finished, Windows may display the PC restart request message. In that case, please follow it.

7.2 Log collection tool

You can collect a set of logs for this driver by running this tool.

The collected information is saved as a CAB file "DNWALOG_YYYYMMDDhhmmss.cab" in "C:\Users\[User Name]\AppData\Local\Temp\UdriverTemp".

Please send this CAB file if you would like to request a survey.

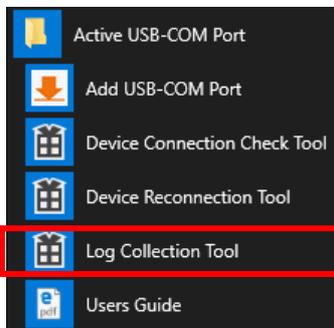
Contents of CAB file:

- files.txt : List of collected files.
- dwserial.etl : Execution log of driver "dwserial.sys".
- dwusb.etl : Execution log of driver "dwusb.sys".
- Application_YYYYMMDD.evtx : Event log (application).
- System_YYYYMMDD.evtx : Event log (system).
- setupapi.app.log : Setup execution log of application managed by Windows.
- setup.api.dev.log : Setup execution log of drivers managed by Windows.
- Reg_***.txt : Registry Information(*** : Registry key name)

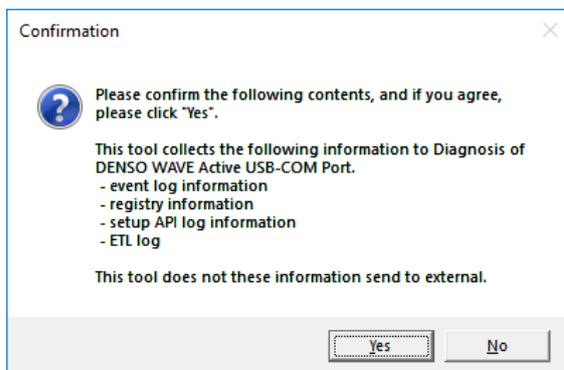
Note:

- The above log is used only for analysis of troubles that occurred on your PC.
- In the file name, YYYY is year, MM is month, DD is day, hh is hour, mm is minute, and ss is second.

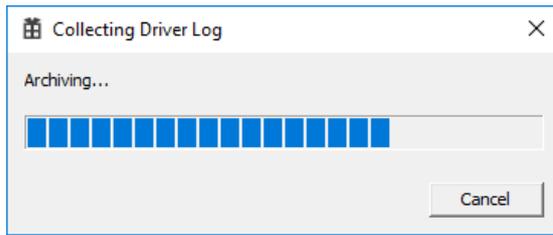
1) Run "Log Collection Tool" from the start menu.



2) The following confirmation screen will be displayed, so select "Yes (Y)".



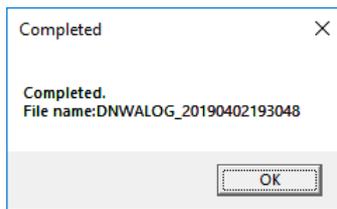
3) Log collection will proceed.



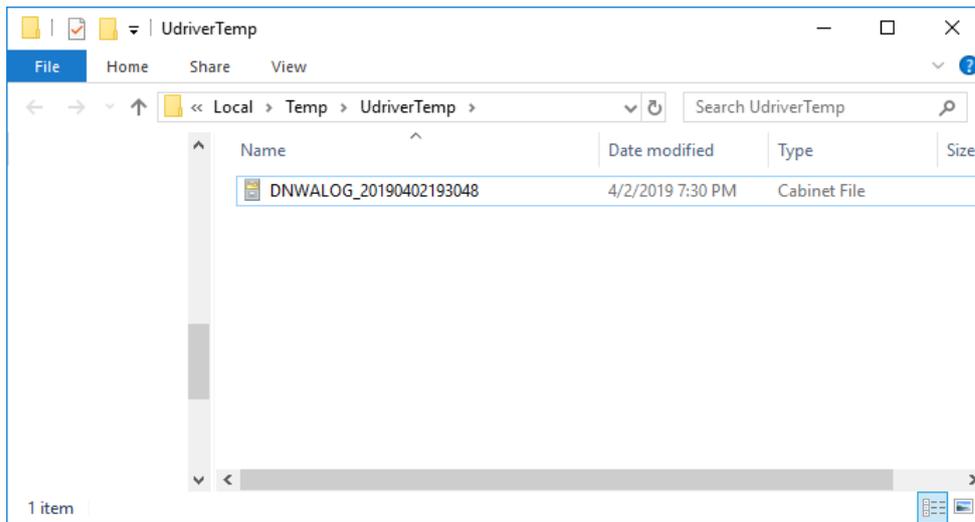
Note:

- Do not close while collecting logs.

4) When log collection is completed, the following screen is displayed. Select "OK".



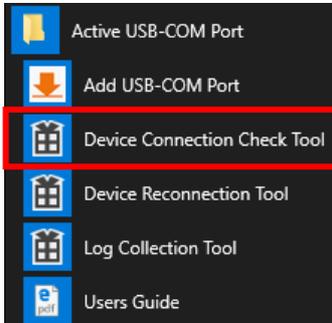
5) The folder where the log collection file was saved is displayed.



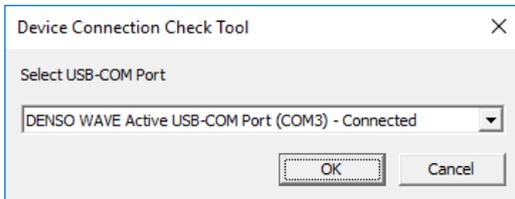
7.3 Device connection check tool

This is a tool to check if this driver is correctly installed, loaded properly and DENSO WAVE USB device is connected properly. You can receive data from the devices.

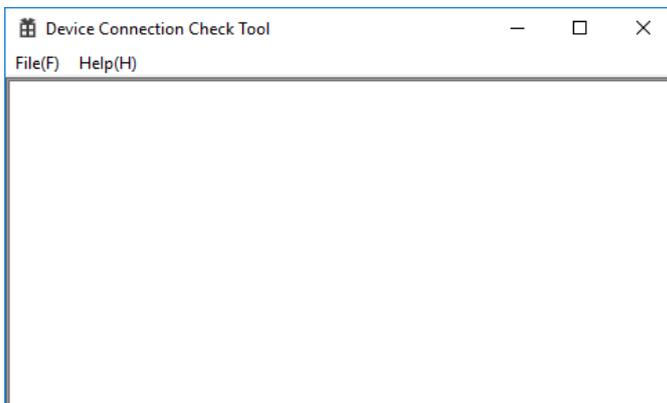
- 1) Start "Device Connection Check Tool" from the start menu.



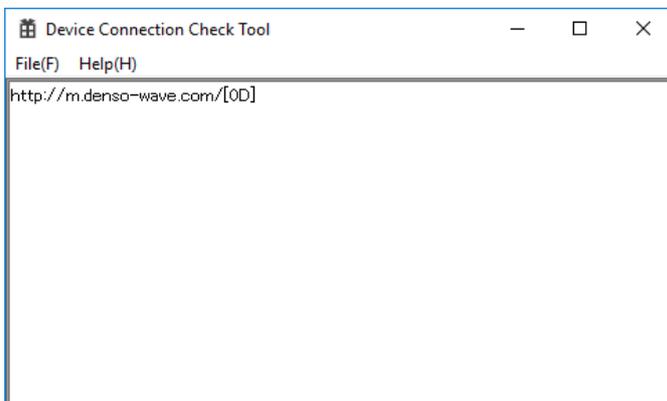
- 2) The following COM port selection screen will be displayed. Select the COM port and select "OK". The port indicated as "Connected" is the port to which DENSO WAVE USB device is connected.



- 3) The following main screen is displayed.



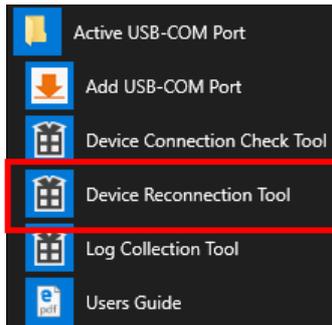
- 4) Reading data is displayed when you read one-dimensional or two-dimensional code with DENSO WAVE USB device (scanner).



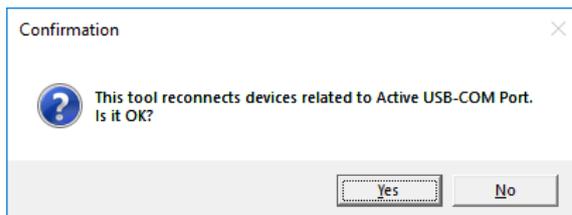
7.4 Device reconnection tool

During operation, for some reason, loading of the USB driver may fail, and data input by DENSO WAVE USB device may not be displayed in the application. In that case, it may be recovered by unplugging and plugging the USB device. However, due to the installation of the equipment, it may be difficult to remove and insert the USB device, and you may have to restart the PC. In order to avoid that, by executing this tool, it behaves the same as when unplugging and plugging a USB device.

- 1) Run "Device Reconnection Tool" from the start menu.



- 2) The following confirmation screen will be displayed, so select "Yes (Y)".



- 3) Reconnection process is performed by software for DENSO WAVE USB device

You can also run this tool from the command prompt.

```
>start /wait "" "C: \Program Files\DENSO WAVE\Active USB-COM Port  
 \DNWA_AUSBD_ReConnect.exe"
```

If option "-s" is added, it will be forced to execute without displaying on the screen.

```
>start /wait "" "C: \Program Files\DENSO WAVE\Active USB-COM Port  
 \DNWA_AUSBD_ReConnect.exe" -s
```

8. When you're in trouble

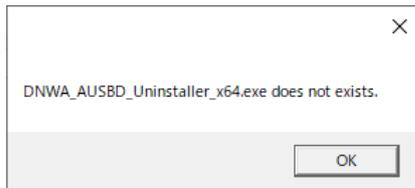
This section describes how to handle some problems that occur during installation, uninstallation and use.

Note:

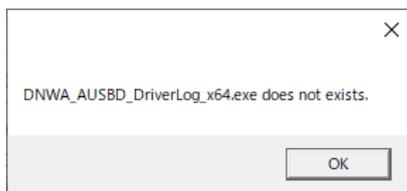
- About the following two tools (driverlog.exe, uninstall.exe) in the \tools folder, after decompressing the compressed driver file downloaded from DENSO WAVE website (<https://www.denso-wave.com>), please use them as it is.

Also, if the exe file is moved and run, the following error message is displayed.

[In case of moving "uninstall.exe"]



[In case of moving "driverlog.exe"]



8.1 Occurred the non-opened error code during installation

Please run the included file "\tools\uninstall.exe" as the Administrator.

If the error not listed in [Section 4.1.4](#) is occurred by the uninstallation, please see [Section 8.2](#).

If the uninstallation successes, please run the included file "install.exe" as the Administrator again.

If the error not listed in [Section 4.1.4](#) is occurred by the installation, please run the included file "\tools\driverlog.exe" as the Administrator (see [Section 7.2](#)) and send the log collection file.

8.2 Occurred the non-opened error code during uninstallation

Please run the included file "\tools\driverlog.exe" as the Administrator (see [Section 7.2](#)) and send the log collection file.

8.3 Doesn't recognize the device even after running Device reconnection tool

The major reasons are as following:

- 1) Windows OS cannot recognize that the device has been inserted in the USB port
On the Device manager, the device has not been added.
- 2) The above 1) succeed, but the enumeration between Windows OS and the device after inserting the device in the USB port fails.
On the Device manager, "Unknown device" or the device name is displayed directly or under "Universal Serial Bus controllers".
- 3) The above 2) succeed, but loading of the USB driver "dwusb.sys" fails.
On the Device manager, "DENSO WAVE USB Device (COMx)" is displayed under "Universal Serial Bus controllers" and "!" mark is added.

The above 1) and 2) are not resolved about the recognition between Windows OS and the device. Please pull and insert the device manually and check the recognition.

The above 3) may resolves after running the Device reconnection tool, but it may still not resolved. In this case, please run the Log collection tool (see [Section 7.2](#)) and send the log collection file.

8.4 Doesn't output the reading data

The major reasons are as following:

- 1) The I/F of the device is set to "USB keyboard I/F".
If the reading data is displayed on a text editor (ex. Notepad.exe), the device is set to "USB keyboard I/F". Please change it to "USB-COM I/F".
- 2) The device is connected to the USB port that is different from it associated with the COM port number using in the application.

The COM port number and the USB port correspond one to one. If the device is connected to the USB port that is different from it associated with the COM port number using in the application, the reading data cannot be outputted via the COM port number.

Also if the device is connected to the USB port not associated with a COM port number, the device can read the symbol (ex. barcode, QRcode etc.), the reading data cannot be outputted via the COM port number using in the application.

Please run the Device connection check tool (see [Section 7.3](#)) and check the connection state of the device.

8.5 Wants to uninstall automatically the version 2.1.0.3 or before

Please add the option “-S” to “\tools\uninstall.exe” and run it as the Administrator (see [Section 4.1.3](#)).

Note:

- We tested the old version 2.0.1.0 or later with our environment, but it does not guarantee your any operational environment. Please test in enough to be no trouble with your operational environment, and use it.
- About the other version, please uninstall manually according to the manual of that version.

8.6 Occurred the digital signature error of the driver in Windows 7

Microsoft has changed the security policy and recommends changing the certificate for the digital signature from SHA-1 to SHA-2 (SHA256). This driver changes the SHA-2's certificate from version 2.1.0.3 or later according to the policy. If the digital signature error of this driver is occurred in Windows 7, please install the security patch program “KB3033929” or the latest security patch program within it.

Note:

- If the error is not occurred, you don't have to install it.
- If you want to install this driver automatically in Windows 7, see [Section 2.1.5](#).

8.7 Notice about Windows Update

If Windows update is executed with this driver installed in the PC, pay the attentions to the following:

- If this driver is not supported for the updated Windows OS and its version, please uninstall this driver before updating, and then update Windows OS. After then, install the driver that is supported the updated Windows OS and its version.

If you do not uninstall this driver that is not supported for the updated Windows OS and uts version and execute Windows Update, this driver may not run correctly or the latest driver may not be installed correctly.

- If you is using some COM ports, please unplug the USB devices, and then update Windows OS. If the USB devices are connected in the PC and Windows Update is executed, the relationship between the USB ports and the COM port numbers may be changed.

If the USB ports and the COM port numbers change after Windows OS, please unplug the USB devices and uninstall this driver. And then, re-install this driver carefully in the order of the device insertion so that the relationship has the same configuration as before Windows update. Or use the Device Manager to change the COM port assignment.

- If you is using the function to prohibit the driver log with [Section 5.2](#) or [Section 5.3](#), please set them again after Window.

Active USB-COM Port Driver User's Guide

19th Edition, Mar. 2020

DENSO WAVE INCORPORATED

The purpose of this manual is to provide accurate information in the installation and uninstallation of Active USB-COM Port Driver. Please feel free to send your comments regarding any errors or omissions you may have found, or any suggestions you may have for generally improving the manual.

In no event will DENSO WAVE be liable for any direct or indirect damages resulting from the application of the information in this manual.