

RNDIS Class Driver Windows Automatic Installation Guide

Version 1.10

For use with RNDIS Class Driver versions 2.2 and
above

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 [USB Device Stack Documents Home](#)

1 System Overview

1.1 Introduction

This guide describes how to install the HCC USB device RNDIS class driver automatically on a Windows 7 or Windows 8 system with a USB2.0 host port. It is for those who want to install the RNDIS class driver on such systems with the minimum effort.

Note:

- The automatic installation only works on a Windows 7 or Windows 8 system with a USB2.0 host port.
- You do not need this manual to install the class driver on a Windows 8.x or Windows 10 system that uses the recommended Class, SubClass and Protocol values. On these systems, the installation is done automatically when you connect the device.

This document describes the modifications to the configuration and the device descriptors that you need to make before Windows can automatically install the RNDIS class driver.

1.2 Documents

Readers should note the points in the [HCC Documentation Guidelines](#) on the HCC documentation website.

HCC Firmware Quick Start Guide

This document describes how to install packages provided by HCC in the target development environment. Also follow this *Quick Start Guide* when HCC provides package updates.

HCC Source Tree Guide

This document describes the HCC source tree. It gives an overview of the system to make clear the logic behind its organization.

HCC USB Device RNDIS Class Driver User Guide

This document describes the RNDIS Device Class Driver.

HCC USB Device Descriptor Generator User Guide

This document describes the tool that is used to generate the `config_usbd_config.c` and `config_usbd_config.h` files.

HCC RNDIS Device Class Driver Windows Automatic Installation Guide

This is this document.

1.3 Change History

This section describes past changes to this manual.

- To view or download earlier manuals, see [Archive: RNDIS Class Driver Windows Automatic Installation Guide](#).
- For the history of changes made to the package code itself, see [History: usbd_cd_rndis](#).

The current version of this manual is 1.10. The full list of versions is as follows:

Manual version	Date	Software version	Reason for change
1.10	2017-08-09	2.2	Added this <i>Change History</i> section. Extended note in <i>Introduction</i> .
1.00	2014-08-19	1.16	First release.

2 Procedures

This section describes how to prepare for installing the class driver. Make all of the changes described in the first three sections and check the files described in the fourth section. You only need to follow the final section if the RNDIS device is not detected the first time it is plugged in.

The `config_usbdc_config.c` and `config_usbdc_config.h` files are created by the HCC USB Device Descriptor Generator. For full details, see the [HCC USB Device Descriptor Generator User Guide](#).

The `config_usbdc_config.h` file is part of the USB base package, `usbdc_base`.

2.1 Changing `config_usbdc_config.c`

This section describes the changes you must make to the file `config_usbdc_config.c`. Do the following:

1. Add the following string descriptor:

```
/* String descriptor */
static const unsigned char OS_String[18] =
{
18, 3, 'M', 0, 'S', 0, 'F', 0, 'T', 0, '1', 0, '0', 0, '0', 0, 0xBC ,
0x00
}; /* M$ OS string */
```

2. Edit the string descriptor array as follows:

```
static const unsigned char * const string_descriptor_en[ 5 ] =
{
string_1_en
, string_2_en
, string_3_en
, string_4_en
, OS_String /* M$ OS string */
}; /* eof strDesc */
```

3. Edit the device descriptor array as follows:

```

/* Device descriptor */
static const unsigned char devDesc[] =
{
18 /* bLength */
, 1 /* bDescriptorType */
, 0x00, 0x02 /* bcdUSB */
, 0x2 /* bDeviceClass */
, 0x0 /* bDeviceSubClass */
, 0x0 /* bDeviceProtocol */
, 0x40 /* bMaxPacketSize */
, 0xCB, 0xC1 /* idVendor */
, 0xA2, 0xBA /* idProduct */
, 0x00, 0x01 /* bcdDevice */
, 01 /* iManufacturer */
, 02 /* iProduct */
, 03 /* iSerialNumber */
, 1 /* bNumConfigurations */
, 5 /* ID of M$ OS string */
,
}; /* eof devDesc */

```

4. Add the following descriptor:

```

/* MS OS Feature descriptor */
const unsigned char OS_feature_dsc[] =
{
0x28, 0x00, 0x00, 0x00 /* dwLength */
, 0x00, 0x01 /* bcdVersion */
, 0x04, 0x00 /* wIndex */
, 0x01 /* bCount */
, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00 /* reserve 7 bytes */
, 0x00 /* bInterfaceNumber */
, 0x01 /* reserved */
/* The following is compatible ID 8 bytes (RNDIS) */
, 0x52, 0x4E, 0x44, 0x49, 0x53, 0x00, 0x00, 0x00
/* The following is SubCompatible ID null 8 bytes (5162001) */
, 0x35, 0x31, 0x36, 0x32, 0x30, 0x30, 0x31, 0x00
, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00 /* reserve 6 bytes */
};

```


2.2 Changing config_usb_config.h

Add the following line to this file:

```
extern const unsigned char OS_feature_dsc[];
```

2.3 Changing config_usb.h

This section describes the changes you must make to the file **config_usb.h**, part of the USB base package, **usb_base**. Do the following:

1. Edit the two defines as shown below:

```
/* Enable or disable handling of MS OS descriptors and string */  
#define USBD_MS_OS_DSC_SUPPORT 1  
#define USBD_MS_OS_VENDOR_CODE 0xBCu /* bMS_VendorCode, must match the  
vendor code returned in OS string descriptor */
```

2. Check that the USBD_MS_OS_VENDOR_CODE configuration matches the value set in [Changing config_usb_config.c](#).

2.4 Files Needed for Windows

This section describes the files you require. These are the following, where **%windir%** is your Windows installation folder:

File	Description
%windir%/inf/rndiscmp.inf	A text file holding all the information needed to install a driver.
%windir%/inf/rndiscmp.pnf	A system-maintained file.

Please check the **.inf** file for the compatible and subcompatible IDs, as shown below.

```
%RndisDevice% = RNDIS.NT.6.0, USBMS_COMP_RNDIS&MS_SUBCOMP_5162001
```

These should match those set in the **OS_feature_dsc**. You should not need to modify the default values.

2.5 Changing the Registry - Windows 7 only

Note: You only need to follow this section if the RNDIS device is not detected the first time it is plugged in.

If you did not configure the descriptors correctly, the RNDIS device is not detected when it is first plugged in. In this case Windows records that no OS descriptor was found and will never ask for the descriptor again.

To force Windows to ask for the descriptor again, you must remove the USB device flag from the Registry. Do the following:

1. Locate the Registry value under `HKEY_LOCAL_MACHINE/SYSTEM/CurrentControlSet/Control/UsbFlags`.
2. Locate the VID/PID folder and delete it.