Overview

The Composite CDC, HID and Audio Unified project is a simple demonstration program based on the MCUXpresso SDK. It is enumerated as a COM port and playback/recording device, which the COM port can be opened using terminal tools, such as TeraTerm. The purpose of this demo is to show how to build a composite USB device and to provide a simple example for further development.

Note

The debug log is outputted through the CDC VCOM port. Due to the TX ring buffer size of the debug console is limited, the debug console will flush the TX buffer to make sure all strings are outputted when the TX buffer is full for default cases. This feature can be disabled by clearing the macro DEBUG_CONSOLE_TX_RELIABLE_ENABLE. Detail information please refer to the debug console components.
For current example, in order to make sure the functionality of the example, the log may be discarded by the debug console when the TX buffer is full. In other words, the DEBUG_CONSOLE_TX_RELIABLE_ENABLE is cleared for this example.

System Requirement

Hardware requirements

- Mini/micro USB cable
- USB A to micro AB cable
- Hardware (Tower module/base board, and so on) for a specific device
- Personal Computer

Software requirements

- The project files are in:
  <MCUXpresso_SDK_Install>/boards/<board>/usb_examples/usb_device_composite_cdc_hid_audio_unified/<rtos>/<toolch
  For a lite version, the project files are in:
  <MCUXpresso_SDK_Install>/boards/<board>/usb_examples/usb_device_composite_cdc_hid_audio_unified_lite/<rtos>/<to
  Note
  The <rtos> is Bare Metal or FreeRTOS OS.

Getting Started

Hardware Settings

- Jumper settings for evkmimxrt685 REV.E is : J7-1 <–> J7-2, J8-1 <–> J8-2.
- The I3C Pin configuration in pin_mux.c is verified for default 1.8V, for 3.3V, need to manually configure slew rate to slow mode for I3C-SC/SDA.

Note

Set the hardware jumpers (Tower system/base module) to default settings.

Prepare the example

1. Download the program to the target board.
2. Connect the target board to the external power source (the example is self-powered).
3. Either press the reset button on your board or launch the debugger in your IDE to begin running the demo.
4. Connect a USB cable between the PC host and the USB device port on the board.

Note

For detailed instructions, see the appropriate board User's Guide.

Run the example in Windows OS

1. Plug in the device which is running composite example into PC.
2. A COM port, HID and a Audio Device is enumerated in the Device Manager.

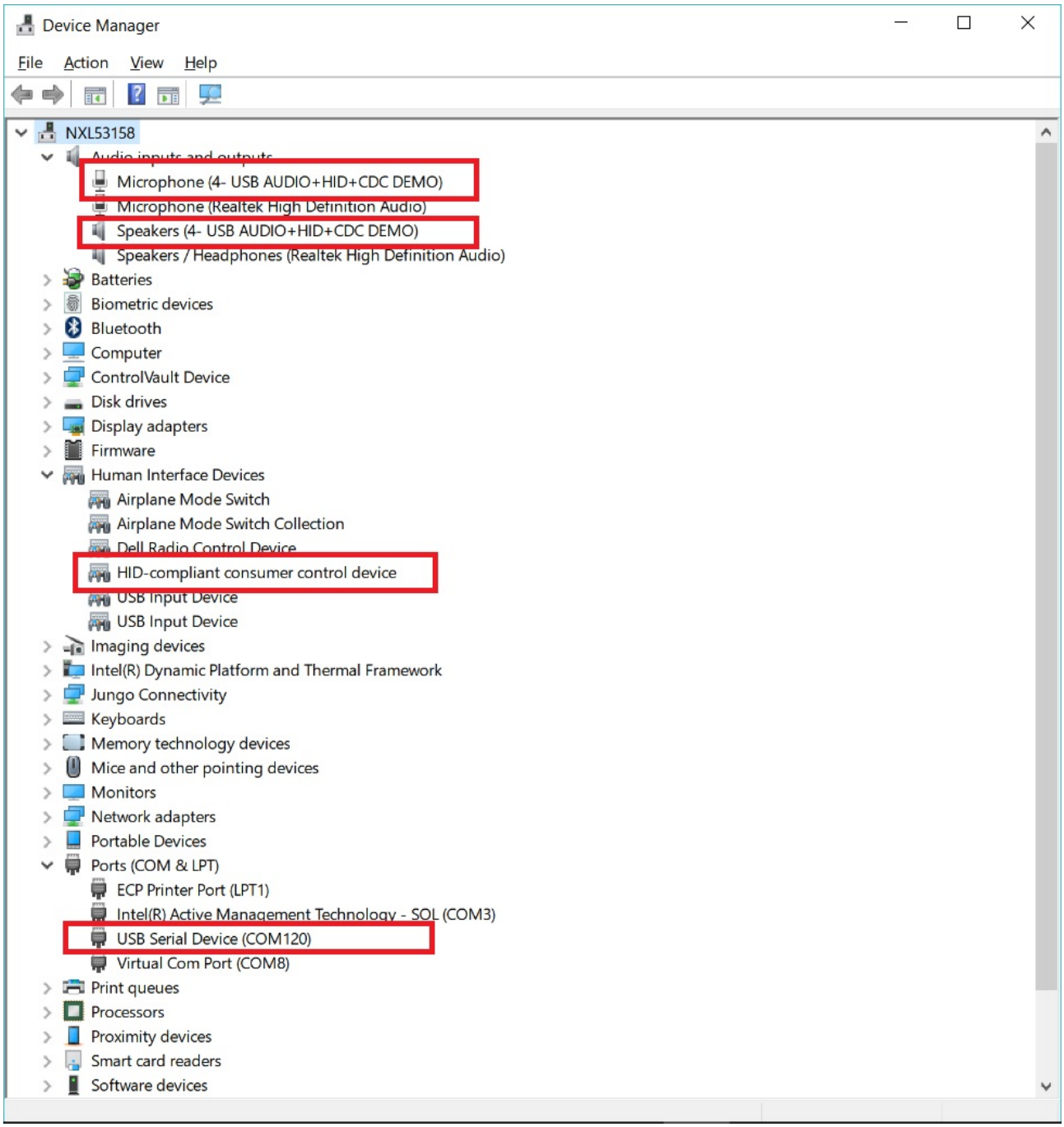

Figure 1: The device enumerated in the device manager

3. Open the COM port in a terminal tool, such as the Putty.
4. Type some characters, which are echoed back from the COM port.

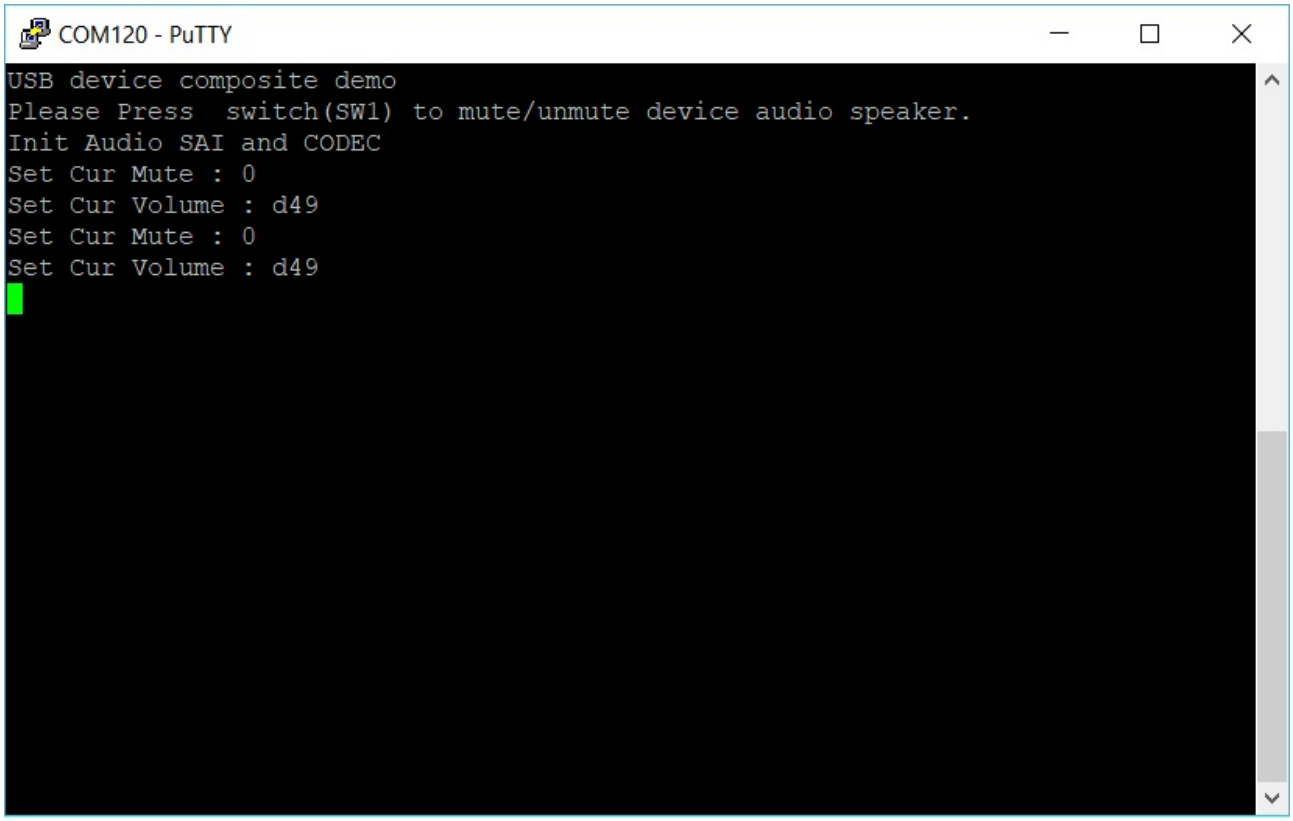

Figure 2: Run virtual com example

5. Right click on the sound control icon in the Start bar (near the clock) and select "Recording devices".
6. In the opened window, select the "Microphone" device with the description "USB AUDIO+HID+CDC DEMO" and click on the "Properties" button.

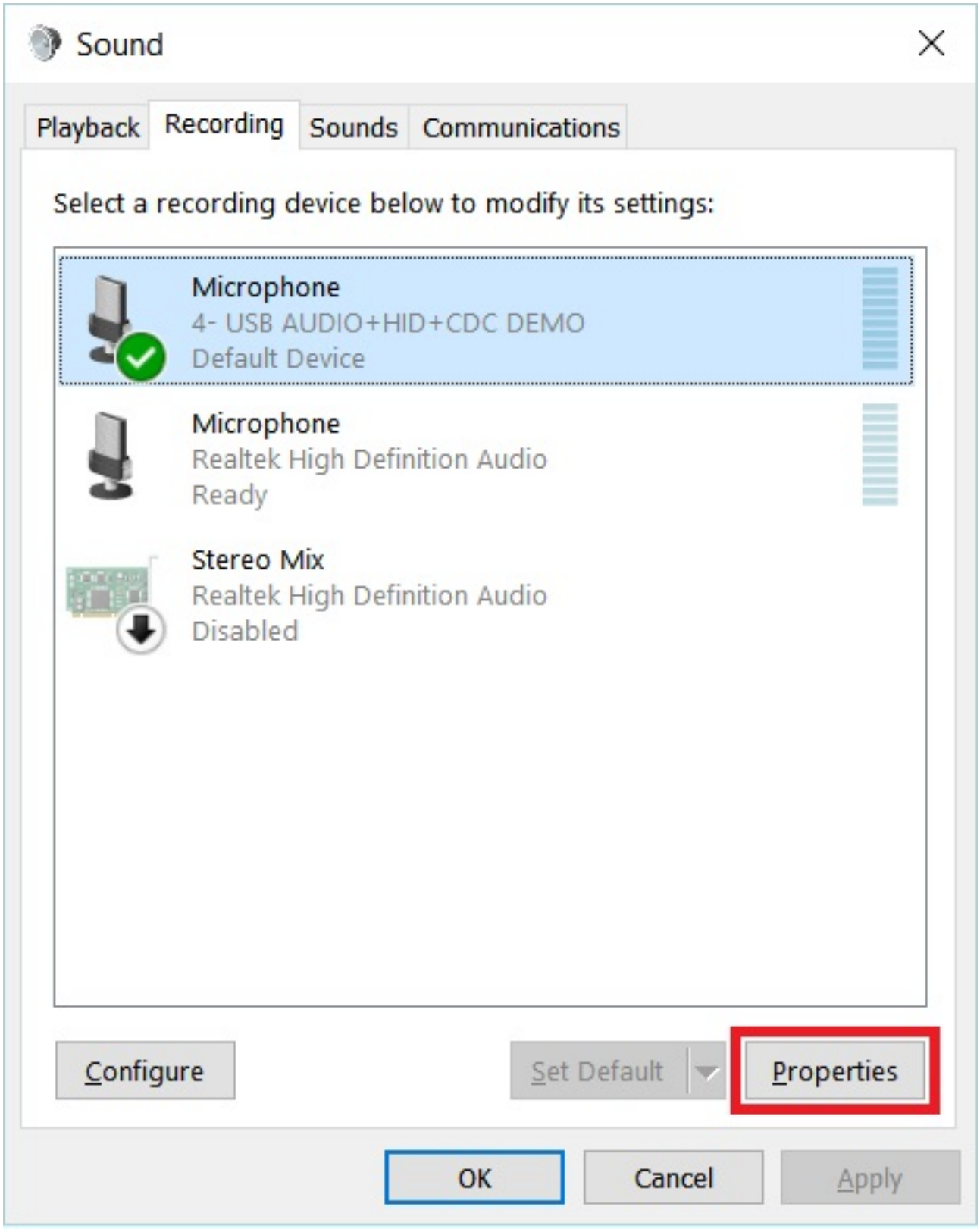

Figure 3: Select properties

7. In the new window, go to "Levels" tab, move the slide until 100%, and click on "OK".

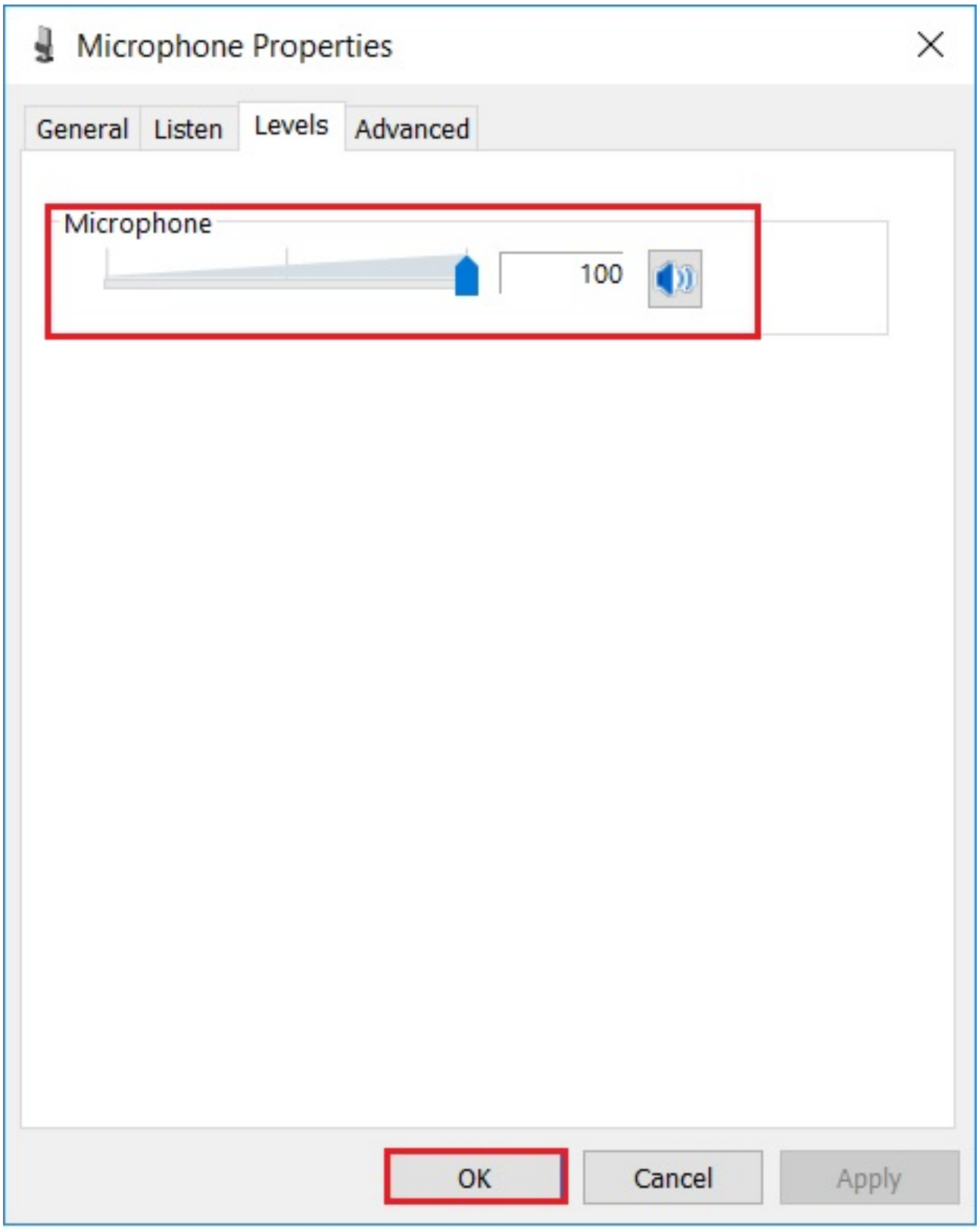

Figure 4: Change level

8. In the previous window, ensure that the "Microphone" is still selected and click on the "Set Default" button. Finally, click on the "OK" button.

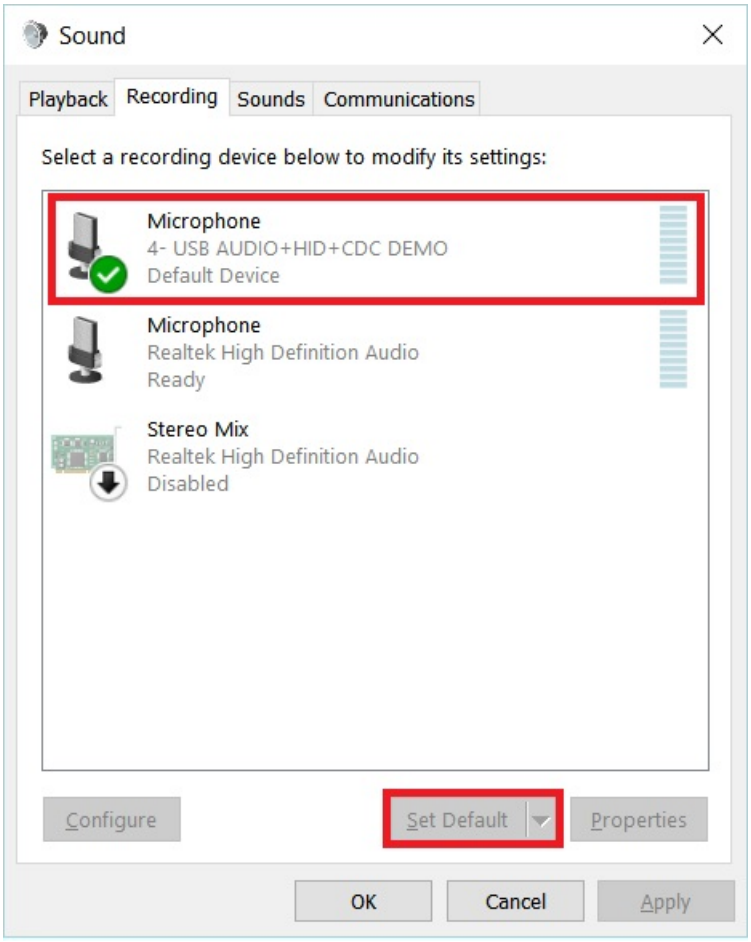

Figure 5: Set default

9. Open the "Sound Recorder" application and record audio for about 5-10 seconds.
10. After recording, open the recorder file with any media player.
11. Switch to "playback" tab and select the "Speakers" device with the description "USB AUDIO+HID+CDC DEMO" and click on the "Properties" button.

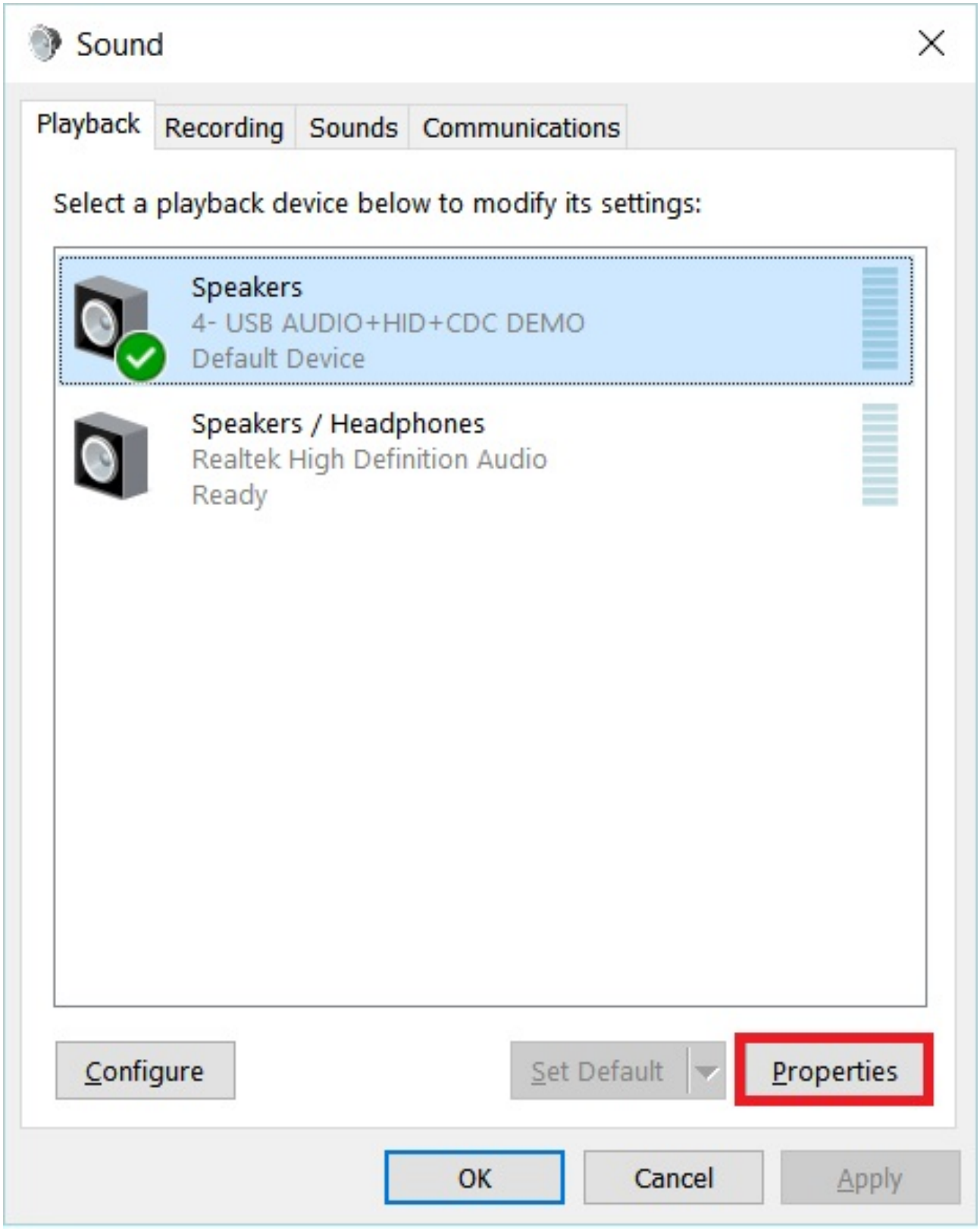

Figure 6: Select properties

12. In the new window, go to "Levels" tab, move the slide until 100%, and click on "OK".

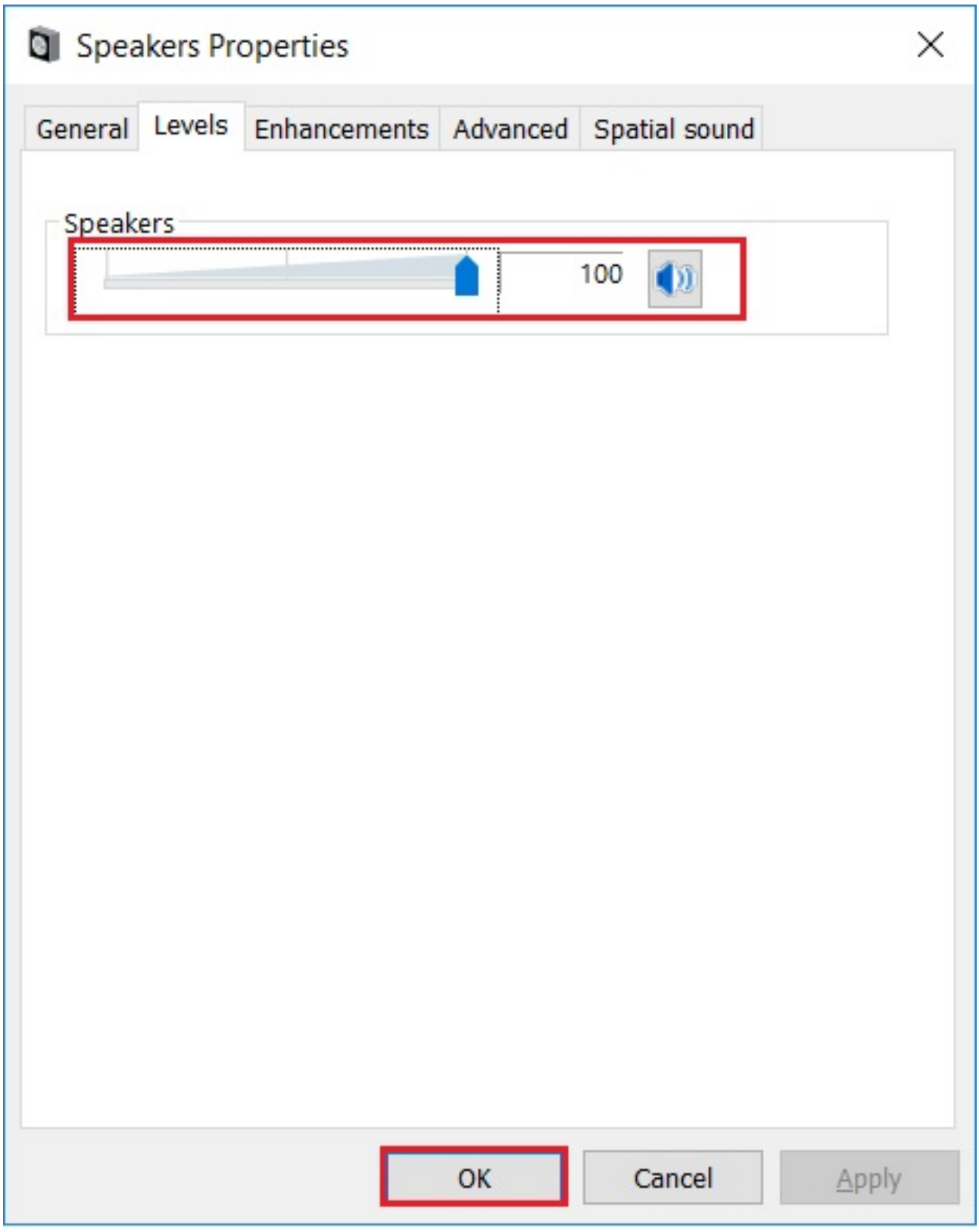

Figure 7: Change level

13. In the previous window, ensure that the "Speakers" is still selected and click on the "Set Default" button. Click on the "OK" button.

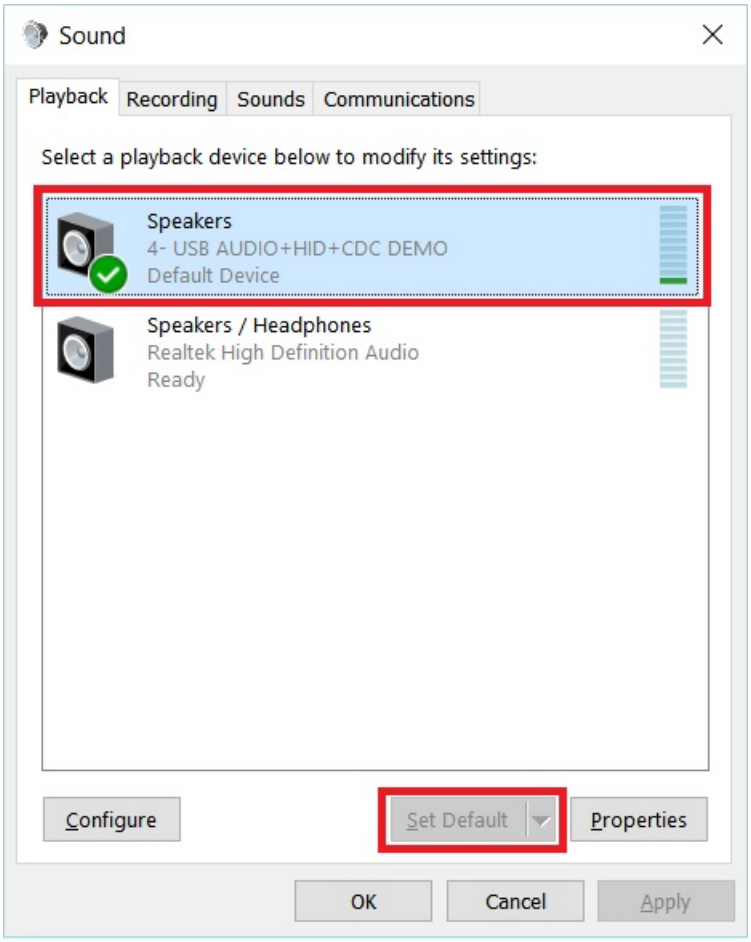

Figure 8: Set default

14. Open the Window Media Player application, select, and play the song.
15. Use the mute/unmute button shown in the debug console's print information to mute/unmute speaker, it only control the speaker.

Note

There is one warning when selecting the demo's inf file to install the cdc driver because the inf file is not updated to support this demo yet.