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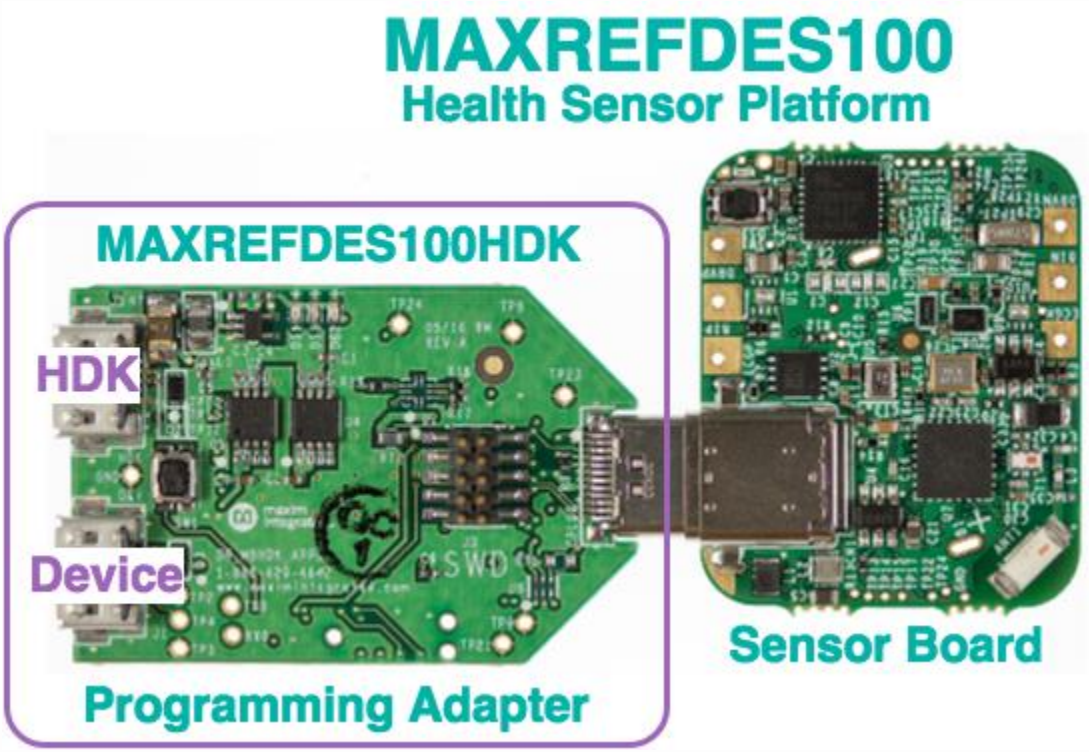
Programming and Debug Adapter (MAXREFDES100HDK)



In order to provide all the standard mbed HDK features and maintain a tiny wearable size, the MAXREFDES100 comes with a detachable programming/debug adapter. The programming/debug adapter connects through a USB type-C connector that is shared with the normal USB signals so that the debug signals are accessible while inside an enclosure and to avoid adding a dedicated debugging connector. The connector is fully compatible with standard USB type-C cables when not debugging, and the pinout is symmetrical so the adapter will work in either orientation.

The MAXREFDES100HDK provides all the standard mbed HDK features:

- [USB MSC] Drag-n-drop programming
- [USB CDC] USB Serial Port
- [USB HID] CMSIS-DAP

Additionally, the MAXREFDES100HDK also provides:

- Pass through USB connection for access to USB while debugging
- 1.8V to 3.3V I/O Voltage
- 10 pin Cortex SWD Header for connecting to other targets
  - HDK SWD Signals

- HDK UART Signals

Information

Check that you are using the latest MAXREFDES100HDK firmware for best results. Information on how to update the firmware can be found here: /teams/MaximIntegrated/wiki/MAXREFDES100HDK

Getting Started

1. Connect the HDK to the sensor board

Plug the HDK programming adapter into the health sensor board at the USB type-C connector.

2. Connect the HDK to a PC

Connect your PC to the HDK board at the micro-USB connector marked HDK. After a few seconds of activity, the PC will recognize the mbed Microcontroller as a standard USB drive.

3. Press the button on the sensor board

Press and hold the only button on the sensor board for about half a second to wake the PMIC and turn on the board.

4. Click the MBED.HTM link to get logged in

Go to the new USB Drive, and click MBED.HTM to open it in a web browser.

If you do not have an mbed account, choose "Signup", and create your mbed Account. Otherwise, log in with your normal username and password.

This will give you access to the website, tools, libraries and documentation.

PC Configuration

Your mbed Microcontroller can appear on your computer as a serial port. On Mac and Linux, this will happen by default. For Windows, you need to install a driver:

Windows

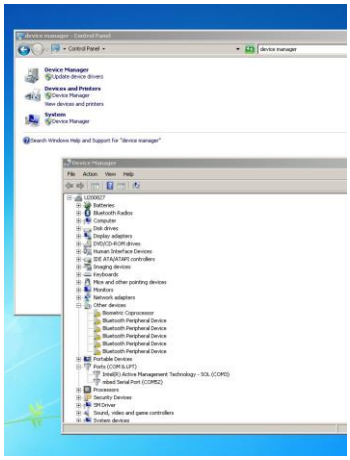
See Windows-serial-configuration for full details about setting up Windows for *serial communication* with your mbed Microcontroller. **Note: this is for the virtual serial port built into the HDK programming adapter**

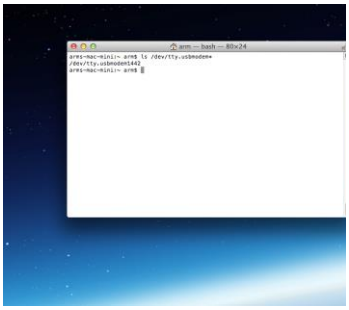
From a host PC to communicate with mbed you will need a `terminal application`. This allows the mbed Microcontroller to print to your PC screen, and for you to send characters back to your mbed.

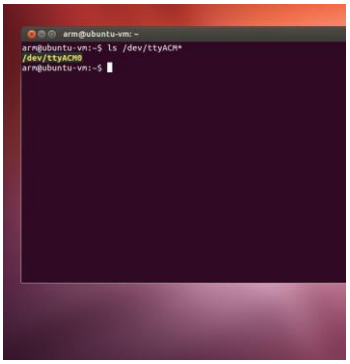
- Terminals - Using Terminal applications to communicate between the Host PC and the mbed Micrcontroller

Some terminal programs (e.g. TeraTerm) list the available serial ports by name. However, if you do need to know the identity of the serial port so that you can attach a terminal or an application to it:

Windows	Mac	Linux
Find the identity of the COM port by opening ''Device Manager''. To do this navigate ''Start -> Control Panel -> System -> Hardware -> Device Manager''.	To find the device name under Mac OS X, use the command ''ls /dev/tty.usbmodem*''	To find the device name under Linux, use the command ''ls /dev/ttyACM*''



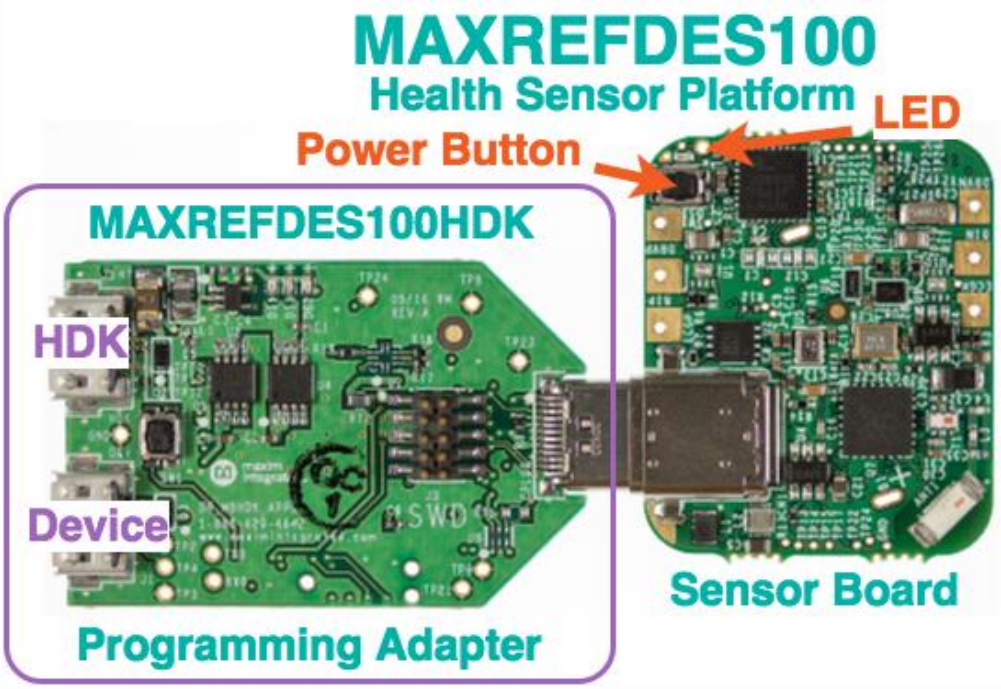




Downloading A program

1. Connect sensor and programming adapter to PC

- Connect the programming adapter to the sensor board as shown below.
- Connect the PC to the programming adapter through the micro USB connector marked "HDK"
- Press and hold the power button for at least a half second to turn the board on.



2. Save a program binary (.bin) to the Platform

Download the demonstration program binary:

- MAX32620HSP:hsp_pmic_demo_max32620hsp.bin

Note: the source code for this program will be seen in the next section.

Save the program binary file to your mbed Microcontroller Disk, just like you would with a normal USB disk. The **Status LED** will flash as the PC writes the file to the Microcontroller disk. The file is now consumed. **Be sure that you turned the sensor board on before saving the file.**

3. Hello World!

The Microcontroller is now running the program; flashing LED1 forever! If you reset the Microcontroller, or disconnect and reconnect the power, the program will simply restart.