

User Guide

Ayla Module Firmware Update Guide

Windows & Macintosh Machines



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1 Introduction

This document describes the procedures for updating the firmware of the Ayla module.

1.1 About this Document

These procedures may be used with the module mounted on the Ayla Platform Design Kit or in any product that allows access to the console serial port of the module.

The firmware is downloaded from a PC (Windows or Macintosh) to the Ayla module over a serial port using the Kermit protocol.

1.2 Intended Audience

- OEM developers

1.3 Related Documentation

- Getting Started (AY006AIO2)
- Hello World! (AY006GHW2)
- Product Architecture Comparison (AY006OPR2)
- Product Development Overview (AY006GOV1)
- Demo API (AY006MDA2)
- Design Kit – USB and TTL Serial Communication User Manual (AY006TTL2)
- Mobile Getting Started (AY006GSB6)
- Device OEM Domain Transfer (AY006UDT3)
- OEM Dashboard Users Guide (AY006UDB3)
- Developer Portal Users Guide (AY006UDP3)

1.4 Prerequisites

- Ayla Development Kit
- FTDI Cable

1.4 Customer Support

Technical support is available through the Ayla Support website at:
<https://support.aylanetworks.com>, or via email at support@aylanetworks.com.

2 Upgrade Overview

This document provides procedures to:

- Install device drivers
- Install Visual C Redistributable Library
- Expand the firmware package
- Update firmware images
- Updating Firmware Images

These procedures may be used with the module mounted on the Ayla Platform Design Kit or in any product that allows access to the module's console serial port.

The firmware is downloaded from a PC to the Ayla module over a serial port with the Kermit protocol.

To connect to the module's console serial port, use a serial-to-USB cable (for example, the Future Devices FTDI TTL-232R-3V3 or any other adapter that uses the FTDI FT232RL chip. This cable can be connected directly to the Ayla Platform Design Kit AY003ESU.

If the Ayla Platform Design Kit or module is powered with this cable, be sure to connect it through a powered USB hub (not directly to the PC). The PC USB port may not supply enough current for the Ayla Platform Design Kit – and can cause unpredictable behavior. This can happen when the module reboots with Wi-Fi enabled.

For other embedded boards, a breakout board for the FT232RL (SparkFun BOB-12731) is very useful.

You can use other USB serial devices, but the above choices are tested and known to work well with Ayla update packages.

For Windows, the serial device should appear as a virtual COM port.

For Macintosh, the serial device should appear as a TTY port.

3 Windows Driver Installation

The PC (Windows 7, Windows 8, or Windows 10 OS) must have:

- USB port
- Internet connection

NOTE For a Windows PC, when this procedure is done the first time, do not connect the USB serial device to the PC's USB port until you finish downloading the device drivers.

Skip this section if the Windows machine already has drivers to connect the USB to serial adapter.

You can obtain the drivers from the manufacturer of the USB serial adapter. For FTDI devices, drivers are available at:

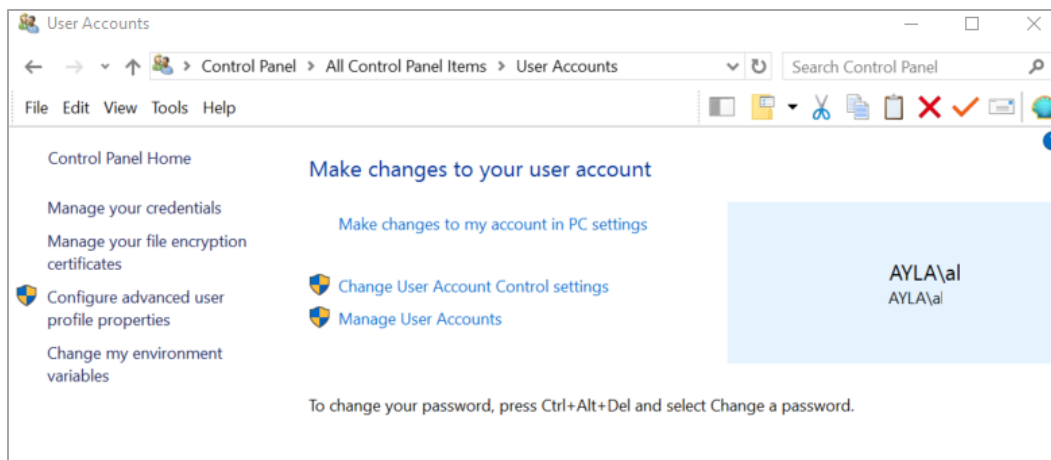
<http://www.ftdichip.com/Drivers/VCP.htm>

Select the driver package for your Windows version.

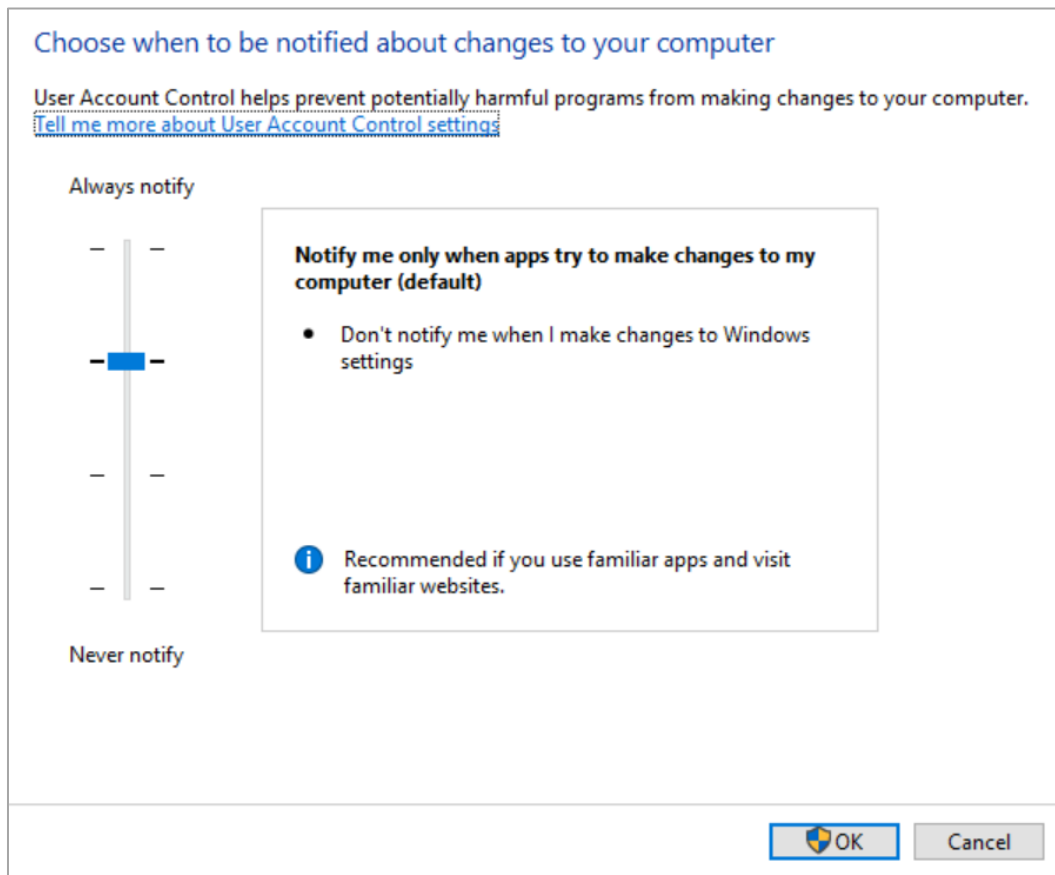
3.1 Disable User Account Control

Make sure that you are logged in on an account with administrator privileges. If User Account Control is enabled, it must be turned off while the drivers are installed.

1. To check if enabled, on the Control Panel, click **User Accounts**.
2. On the User Accounts dialog box, click **Change User Account Control settings**.



3. On the User Account Control Settings dialog box, check the setting level of the slider.



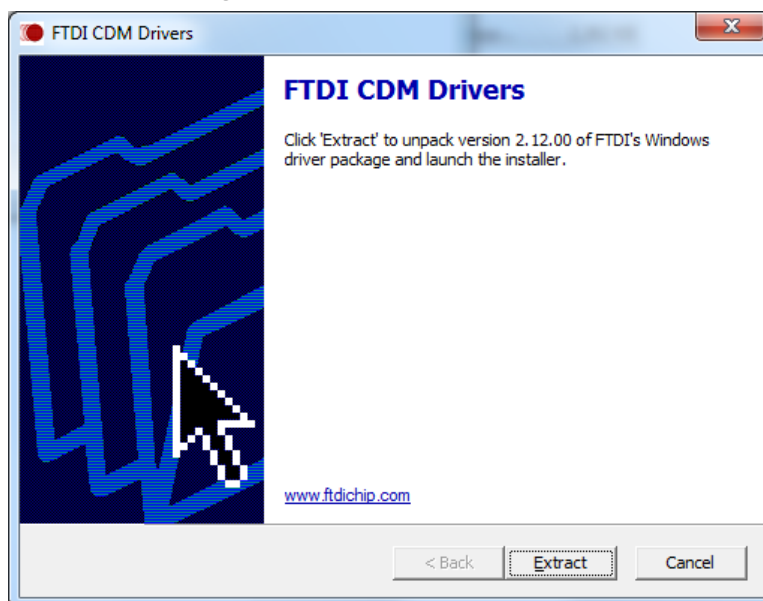
4. If the slider is already on the bottom, click **Cancel** and go to [Run Driver Install Program](#).
5. If not, move the slider to the bottom, click **OK**, and restart the Windows system.
6. On restart of Windows OS, go to [Run Driver Install Program](#).

NOTE After the drivers are installed, restore the settings to the previous level.

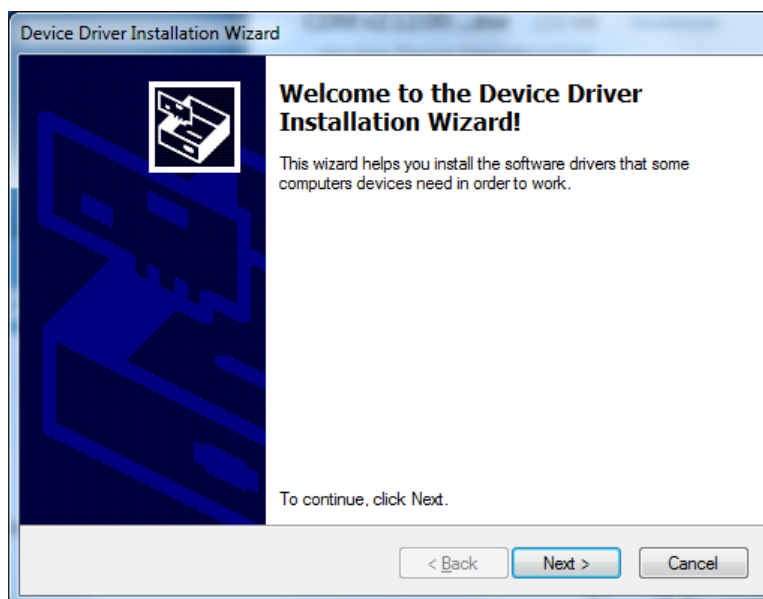
3.2 Run Driver Install Program

The FTDI drivers are in an executable .exe file.

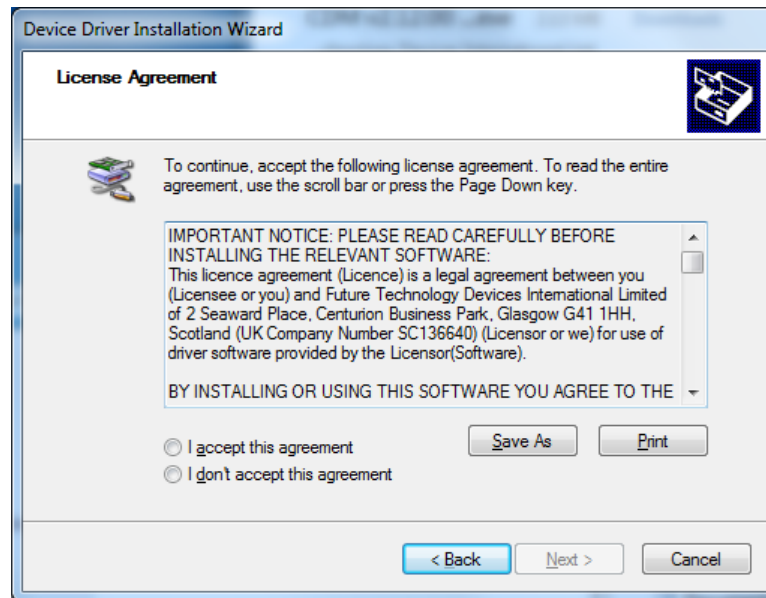
1. Go to the file download location and double-click the .exe file to start the installation.
2. On the FTDI COM Drivers dialog, click **Extract**.



3. On the Welcome dialog, click **Next**.



- On the License Agreement dialog, select **I accept the agreement** radio button and click **Next**.



NOTE Ayla recommends that you read through the agreement to make sure the terms and conditions are understood. To save the license agreement as a file, click **Save As**. To print the agreement, click **Print**.

- On the Completing the Device Driver Installation Wizard dialog, click **Finish**.



3.3 Connect the USB Device

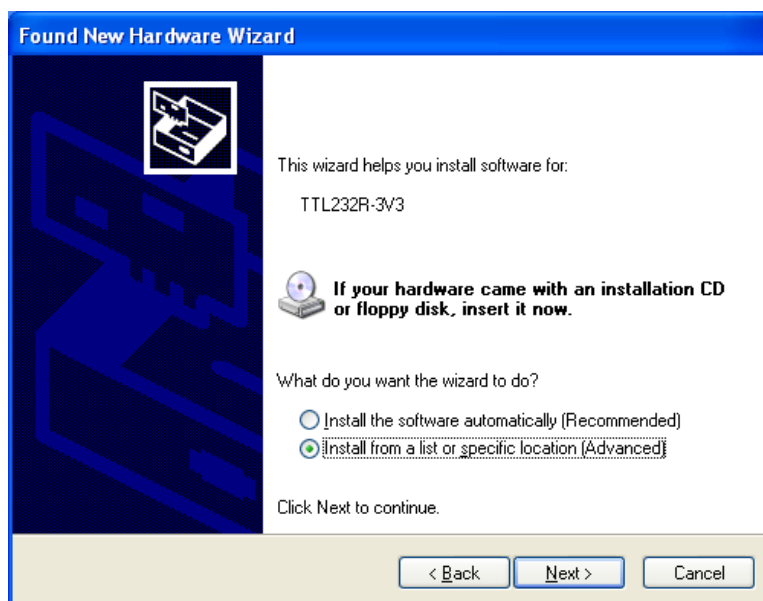
Now connect the USB serial adapter to a USB port on the PC.

1. Windows will display a Found New Device notice and open the Found New Hardware Wizard dialog.
2. Because the drivers are not available online, select **No, not this time** radio button and click **Next**.

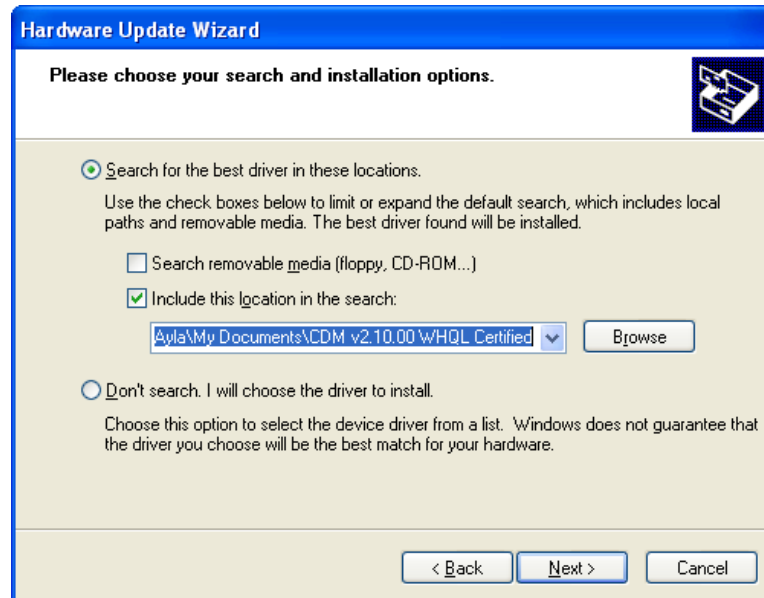


NOTE If the Welcome dialog does not appear, go to the Device Manager. Locate the USB device and click Update Driver.

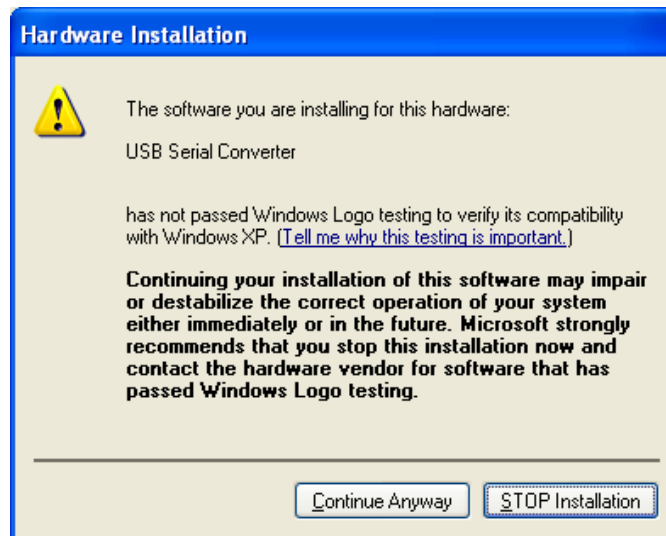
3. On the Select Location dialog, select the **Install from a list or specific location (Advanced)** radio button and click **Next**.



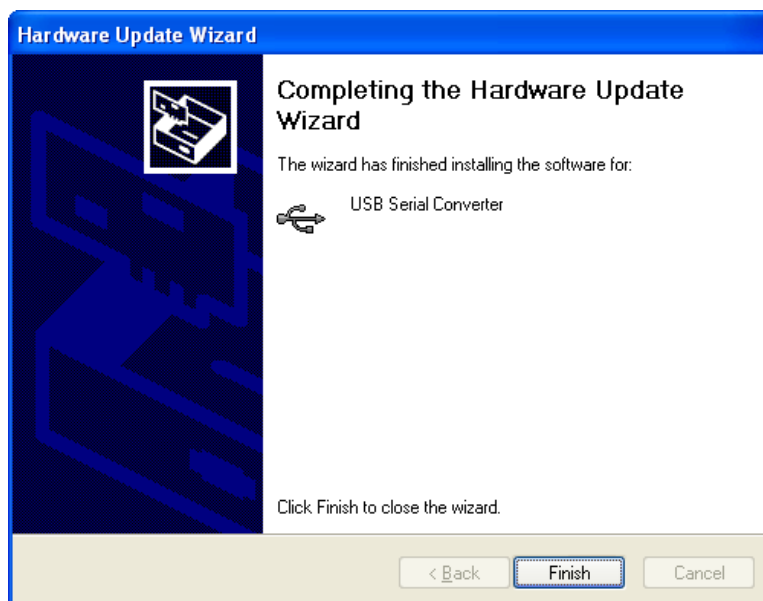
4. On the Please choose your search and installation options dialog, select **Include this location in the search** checkbox.



- Click **Browse** to locate and select the folder.
The drivers might be located at: "c:\Documents and Settings\user\My documents\CDM v2.100.00 WHQL Certified".
 - Click **OK**.
 - On the dialog, click **Next**.
5. This testing warning dialog may display. If so, click **Continue Anyway**.



6. On the Completing the Hardware Update Wizard dialog, click **Finish**.

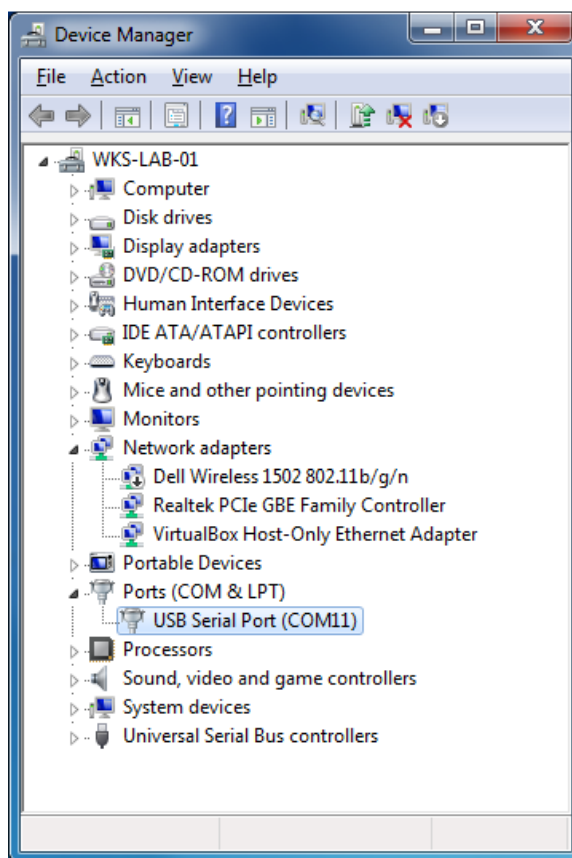


7. Windows will display a notice dialog: "Your new hardware is ready to use". Proceed to installing visual C Redistributable.

3.4 Find the COM Port Number

1. After the device driver installation is completed, go to the Control Panel's Hardware Device Manager.

2. Locate the entry for a USB Serial Port (similar to this).



3. In this example, the USB Serial port number is **COM11**.
4. Provide this number on the [Update Firmware Image](#) section.

3.5 Install Visual C Redistributable Library

If not already installed on your machine, download and install MSVCR100.dll (32-bit). This library is available at:

<http://www.microsoft.com/en-us/download/confirmation.aspx?id=5555>

If this is done, the update program will check and if not there, gives an error mentioning the missing file (MSVCR100.dll).

If this occurs, download and install the MSVCR100.dll file.

3.6 Expand the Firmware package

The package with the updated firmware and the FTDI drivers is delivered in a file named *update-AY001xxx-0.8.zip*. There are multiple module types, so the part number may vary.

"AY001xxx is" the module part number and 0.8 is the version number.

To successfully run the firmware update, the part number of the module **MUST** exactly match the device part number portion of the file name.

1. Copy the package to your preferred location (i.e., My Documents folder).
2. Use Windows Explorer to navigate to that location.
3. Right-click on the file and select **Expand All**. This creates a directory with a name similar to the file name.
4. If there is a README file in that directory, open with Notepad (or another text editor). Read it for any release-specific notes.

3.7 Update Firmware Image

To determine the version of the Ayla firmware image currently installed:

1. Open a command window and go to the directory.

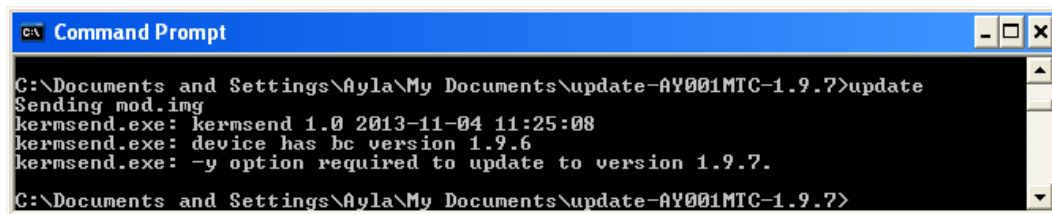
```
cd update-AY001xxx-0.8
```

2. Enter (with the COM port number). See [Find the COM Port Number](#).

```
update /c 11
```

3. The update.bat script runs a program called kermssend.exe.

The kermssend.exe connects to the serial port, determines the version of the module, if possible, and displays the old and new version numbers.



```

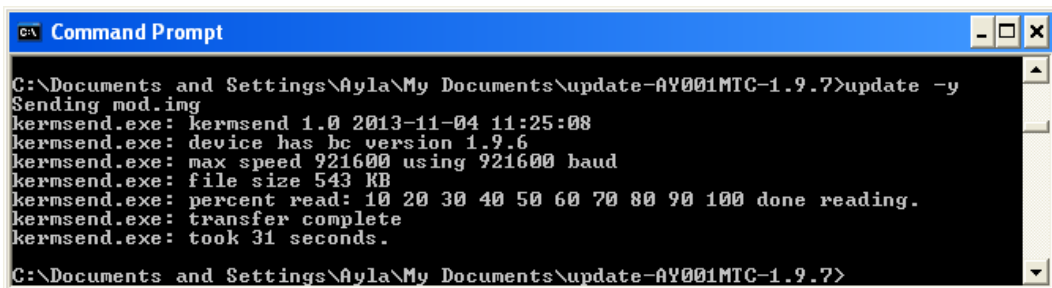
C:\Documents and Settings\Ayla\My Documents\update-AY001MTC-1.9.7>update
Sending mod.img
kermssend.exe: kermssend 1.0 2013-11-04 11:25:08
kermssend.exe: device has bc version 1.9.6
kermssend.exe: -y option required to update to version 1.9.7.
C:\Documents and Settings\Ayla\My Documents\update-AY001MTC-1.9.7>

```

4. To perform the update, re-enter the update command with a -y parameter.

```
update /c 11 -y
```

5. The response will display:



```

C:\Documents and Settings\Ayla\My Documents\update-AY001MTC-1.9.7>update -y
Sending mod.img
kermssend.exe: kermssend 1.0 2013-11-04 11:25:08
kermssend.exe: device has bc version 1.9.6
kermssend.exe: max speed 921600 using 921600 baud
kermssend.exe: file size 543 KB
kermssend.exe: percent read: 10 20 30 40 50 60 70 80 90 100 done reading.
kermssend.exe: transfer complete
kermssend.exe: took 31 seconds.
C:\Documents and Settings\Ayla\My Documents\update-AY001MTC-1.9.7>

```

The driver has been installed.

3.8 Troubleshooting

To determine the serial port, kermsex.exe looks for the single virtual serial port in the registry. If there is more than one, a pop-up dialog box describes the error.

The easiest approach is to disconnect other devices that created other virtual serial ports and redo the update command.

If that is not possible, you can specify the COM port. To discover which port to use, on Windows XP, run the DOC “mode” command, which will list the status for all the COM and LPT ports.

If it isn’t obvious which one is the Ayla device, disconnect the Ayla device and run the “mode” command, then reconnect it, run the “mode” command again and notice which COM port has appeared. If that is COM5, for example, run

```
update.bat /c 5 -y
```

4 Macintosh Driver Installation

4.1 Download Software

This section describes the process to install drivers on Macintosh machine.

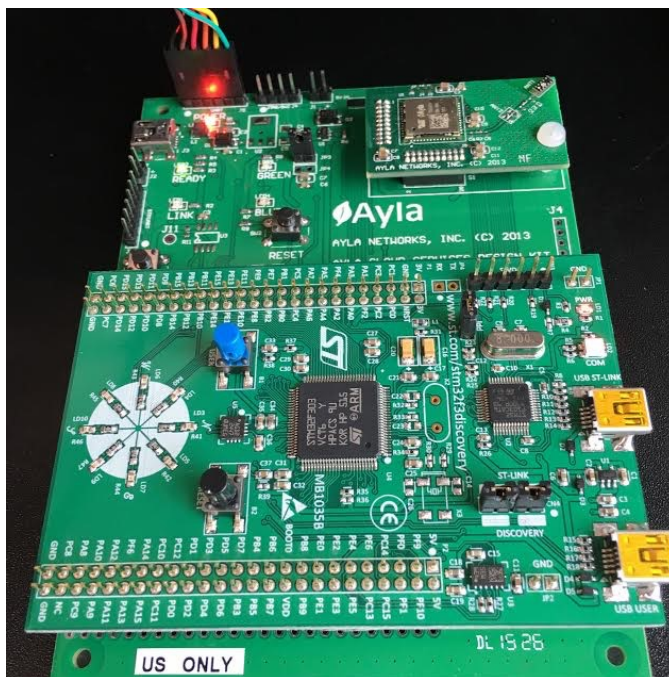
1. Contact your Customer Support team and request the latest Module FW version.

NOTE The latest version will be provided.

2. Download latest SW version of your specific module type (USI, Murata, etc.)
3. Save the new SW version file in your preferred location.

4.2 Connect Dev Kit

1. With a FTDI cord, plug your Dev Kit (USI, Murata, etc.) into your computer.
The green wire should always face the module.

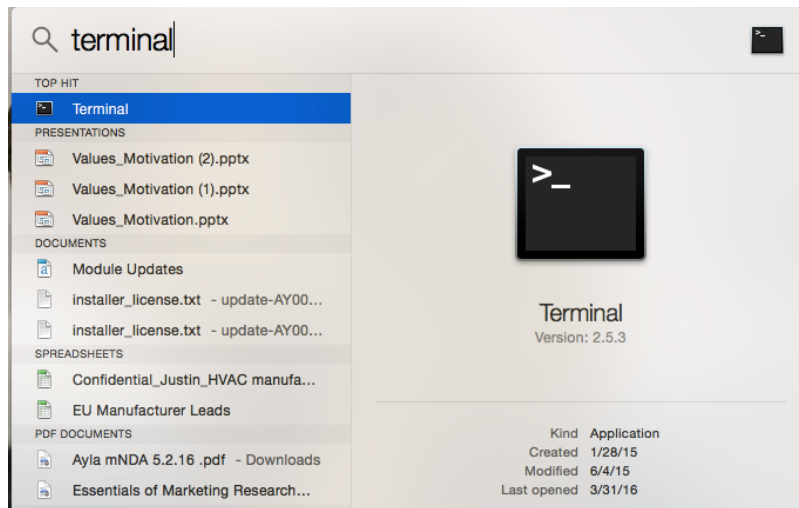


2. Verify the connections are properly plugged into the computer and Dev Kit.

4.3 Start Terminal App

1. On the laptop, open your command window application. The example below shows "Terminal"

If no command window is installed on your machine, find and install the application.



2. In the terminal window, enter:

```
cd /users/<name>/desktop/<module_folder>
```

where:
<name> is the owner of the PC.
<module_folder> location of the latest FW version of module
3. Press Tab key
4. Press Up key

4.4 USI/Murata Update Example

1. Enter this command with the correct update version:

```
cd /users/<pc-owner-name>/desktop/update-AY001MTC-1.9.15
```
2. Enter:

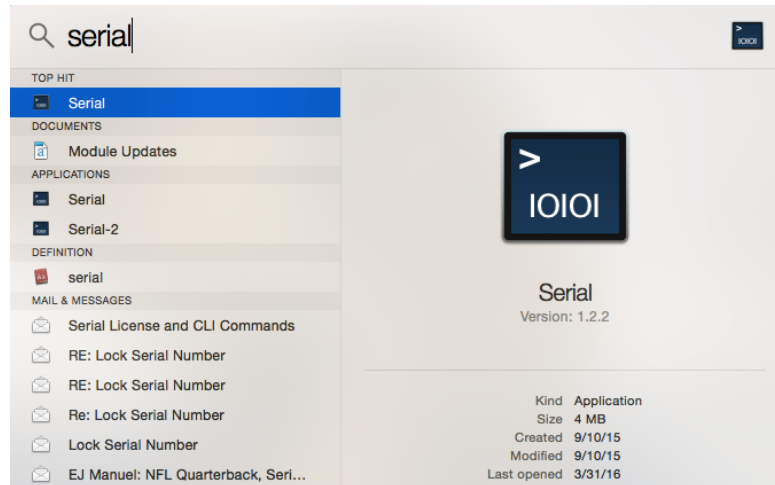
```
./update
```
3. Press **Enter** key again
Terminal will ask the user to install update. For example:

```
kerm send: OK to send version 1.9.15? yes or no?
```
4. Enter **y** or **yes** and press **Enter** key.
Module should then begin updates
5. The update is complete when the Transfer Complete dialog box displays.
6. On the dev kit, press the Factory reset sequence to ensure the kit is ready for development.

4.5 Verify the Dev Kit Firmware Version

1. On your laptop, open a serial console application. The example below is called "Serial" (a commercial application).

If no port application is installed on your machine, find and install an application.



2. Enter `show id` and press enter

This provides details of the module and shows which software version is installed. For example:

```
--> show id
id: model "AY001ABC1"
id: serial "AC000W001231215"
id: dev_id "AC000W0123401215"
id: mfg_model "TOBE1ZXYZZ-BTEMP-AYLA"
id: mfg_serial "p1"
id: stm32_sig "002c1234-35334715-31383432"
id: mac_addr "fcdabb3a9bcc2"
```

3. Enter `show version` and press ENTER

```
--> show version
bc 2.4.5 12/08/15 22:03:34 ID XXXXXXXXX
```

4. Review the details and confirm this is the correct firmware update.

The driver has been installed.



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