



SAMSUNG
ARTIK™ Modules

**Getting Started with the ARTIK
Development Board**

Samsung Training Lab

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OBJECTIVE

This lab will setup the ARTIK Development Board for this and other ARTIK Labs.

POWERING UP THE BOARD

This section sets the ARTIK Development Board up with power, Wi-Fi, and serial connection. The following illustration indicates the pertinent connections and switches.

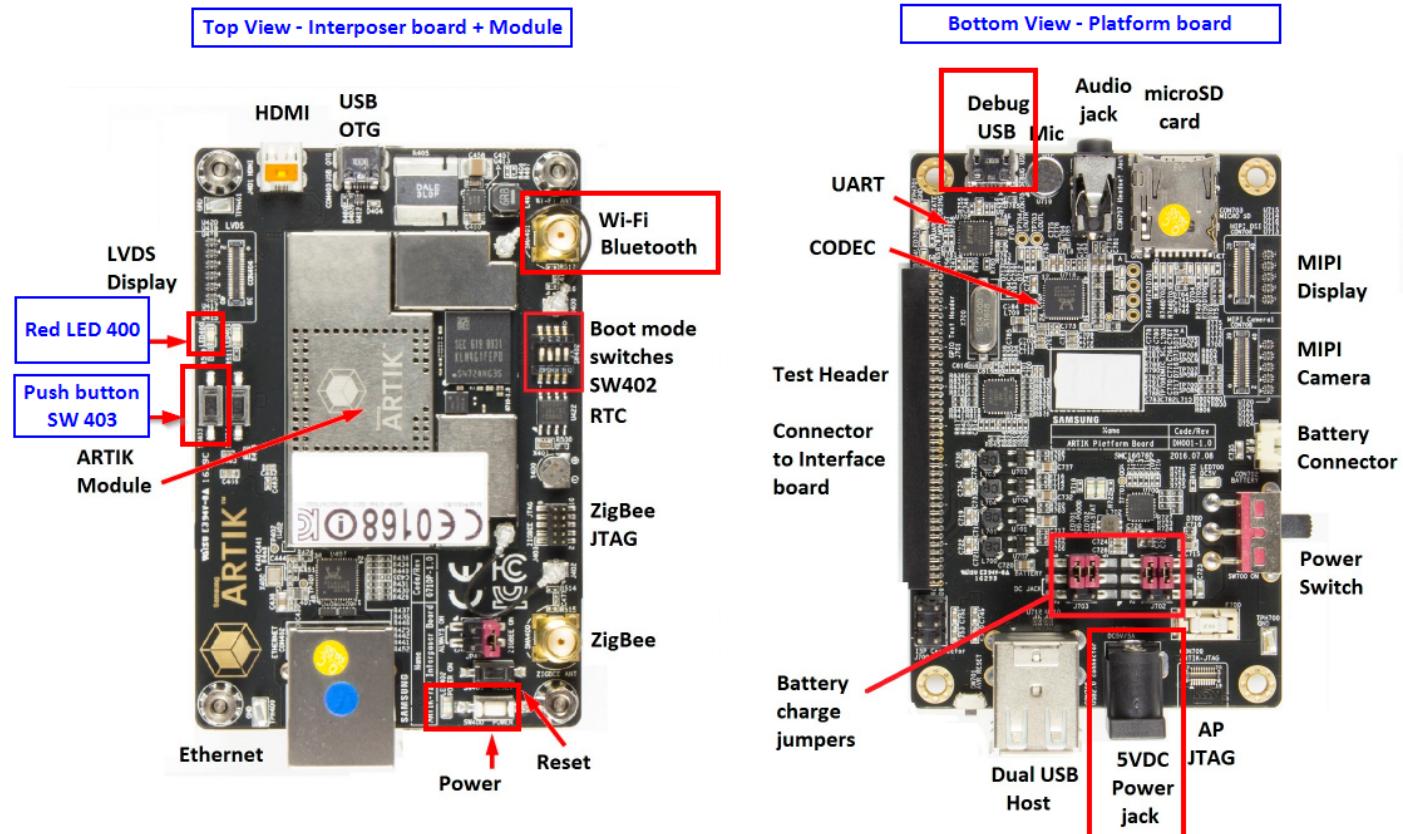
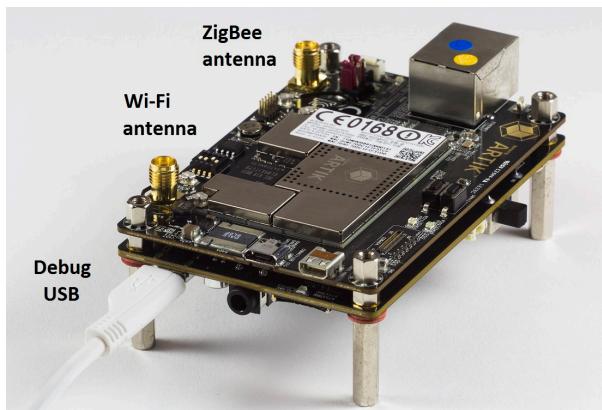
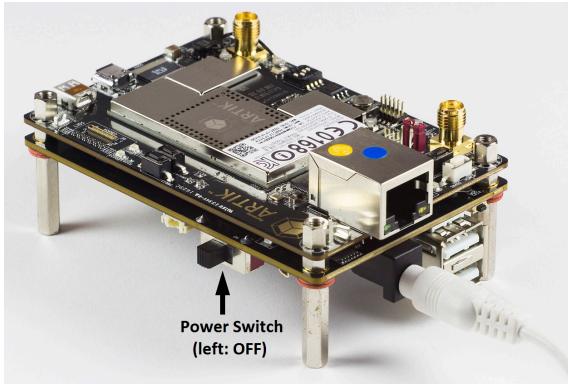


Figure 1. ARTIK Development Board

1. Connect the wireless antenna to the Wi-Fi connector on the ARTIK Development Board.
2. Connect the serial USB to the micro-USB cable to your computer with the debug board. The micro-USB connector on the platform board (located on the bottom level of the kit) near the Wi-Fi antenna.



- Set the **Power** switch on the board to the OFF position. Refer to figure below for the position of power switch.



- Plug the AC power supply and the 5V connector into the board.
- Set the **Power** switch on the board to the ON position. A green and red LED will illuminate on the bottom of the board. The green LEDs will fast-blink.
- Press and hold the 'white colored Power switch' for 3 seconds, until the red LED next to it glows indicating the board boot up



ARTIK SERIAL PORT SETUP

Please refer to one of the following sections, based on the OS of your PC:

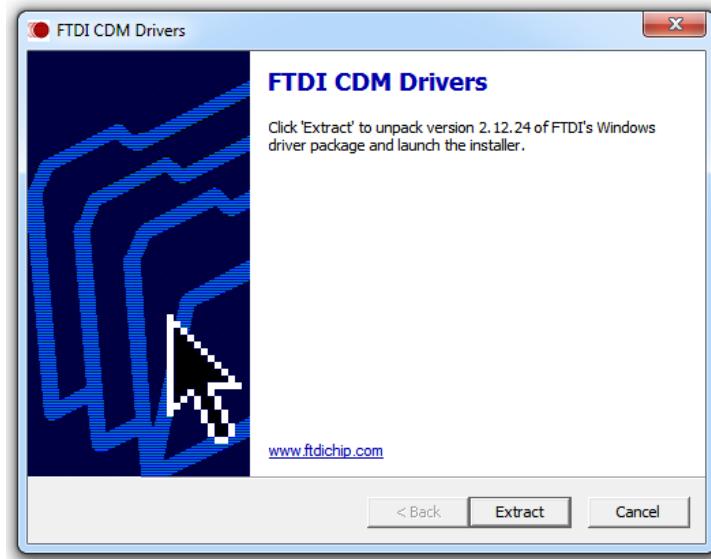
Windows: [Windows Serial Port Setup](#)

Macintosh: [Macintosh Serial Port Setup](#)

WINDOWS SERIAL PORT SETUP

1. Drivers are required for the USB serial ports. To obtain them, click on the following link:
http://www.ftdichip.com/Drivers/CDM/CDM21224_Setup.zip

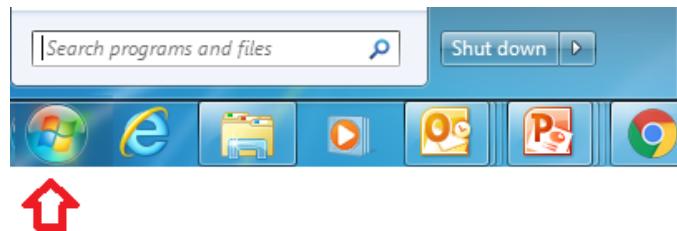
Answer **OK** then **Open** to open the **.zip** setup file. Once opened, **Run** the setup program **.exe** file to extract the installer.



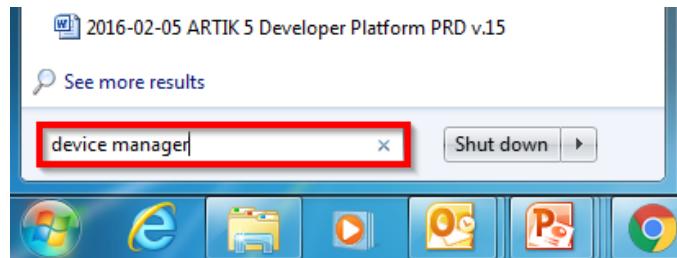
2. Follow the installer instructions.



3. Click the Windows **Start** icon.

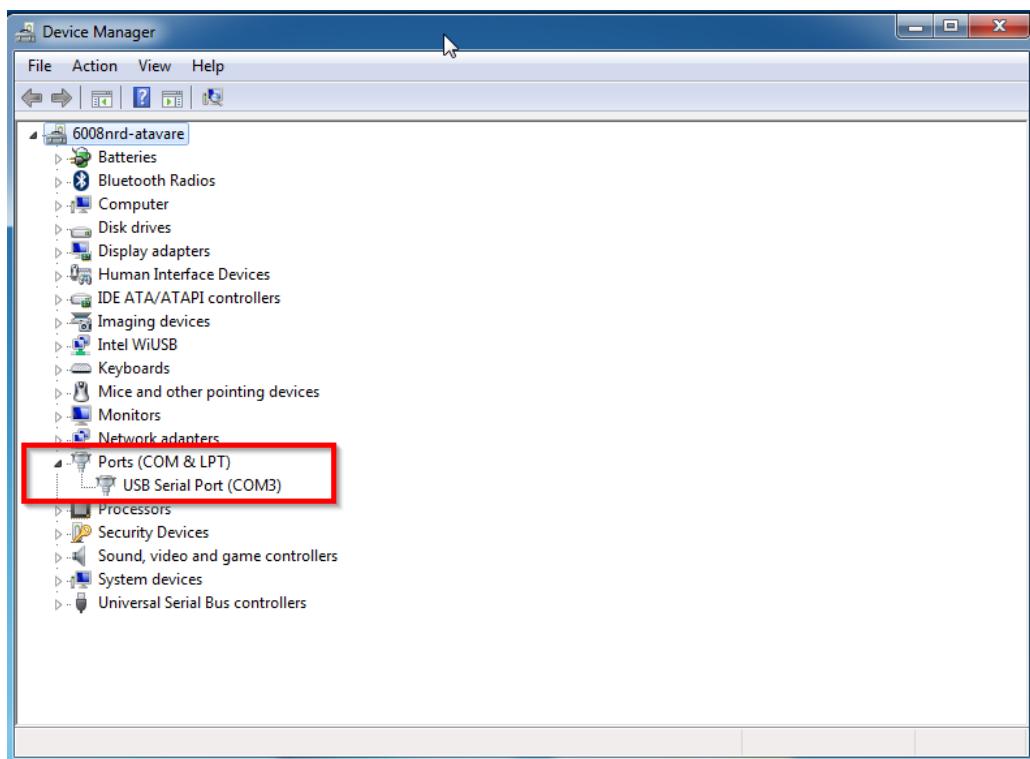


4. In **Search programs and files** type "**device manager**".



5. Get the COM port number when you connect a USB serial cable to the PC (in this example the COM port number is "COM3"). This COM port number will be used to connect to the ARTIK Development Board.

Note: If the COM port connection is not detected, temporarily power ON the board
(see [step 5](#) in the section [Powering up the Board](#) on [page 3](#) above).

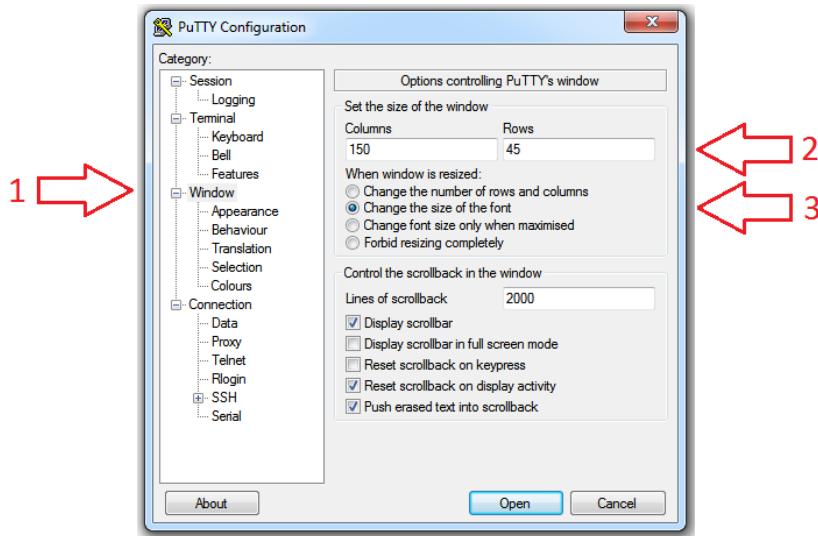


6. It is recommended that Windows users install PuTTY, a free serial console program, found at: <http://www.putty.org>

Follow the download links to “**putty.exe**”. Click on the “**putty.exe**” link to save it to your PC. Run putty.exe and pin it in your Task Bar for quicker future access.

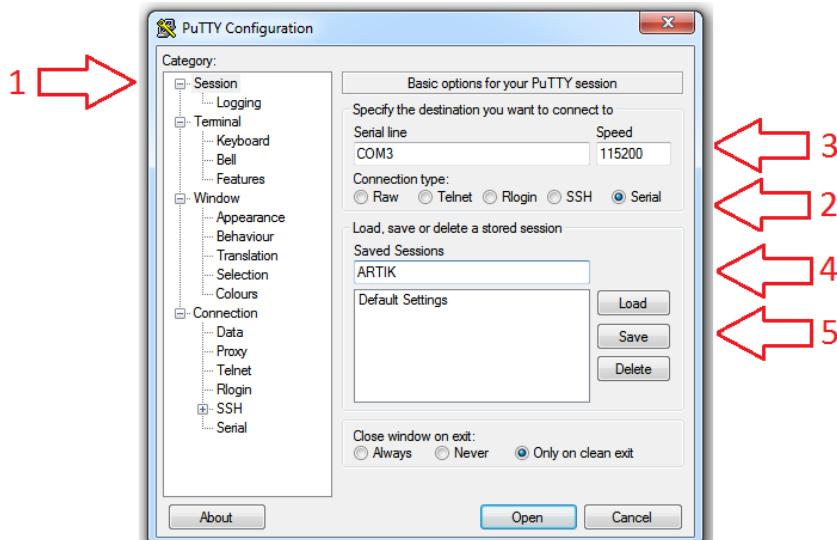
7. With PuTTY opened, set up an ARTIK configuration:

- a. Select the **Window** section of settings.
- b. Set the window **Columns** to **150** and **Rows** to **45**.
- c. Select **Change the size of font** when the window is resized.



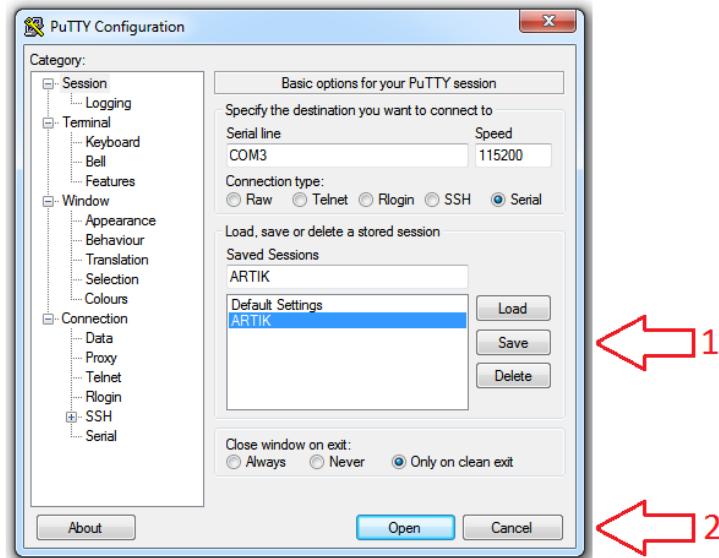
8. Set the PuTTY configuration as follows:

- a. Select the **Session** section of settings.
- b. Set **Connection type** to “**Serial**”.
- c. Set **Serial line** to the COM port number found in [step 5 on page 6](#) above. Set **Speed** to “**115200**”.
- d. Enter the name “**ARTIK**” as a saved configuration set.
- e. Click **Save** to save the configuration. “**ARTIK**” will show up in the configurations list.

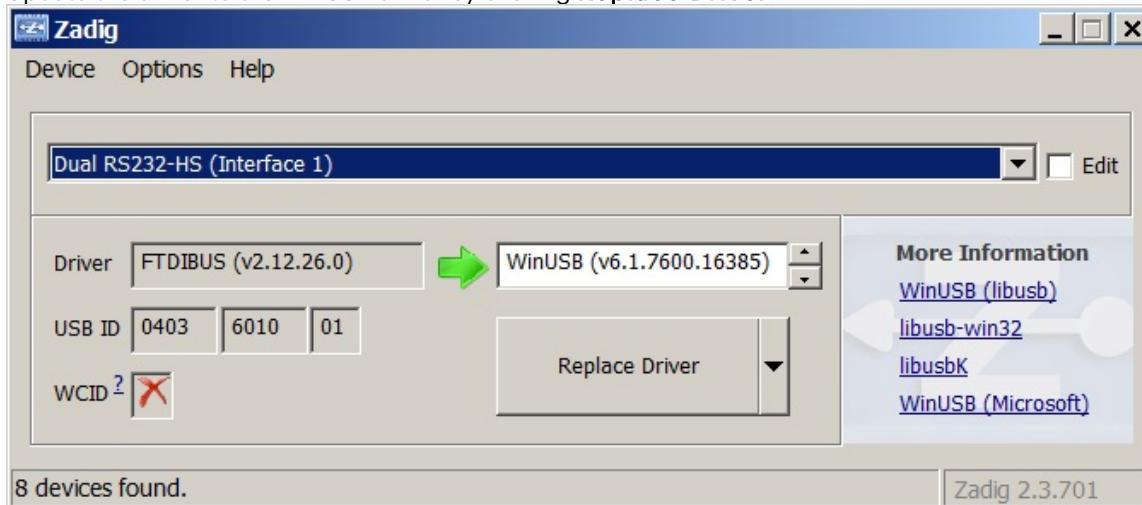


9. Connect to the ARTIK Development Board:

- Select the "ARTIK" configuration from the configuration list.
- Click **Open** to connect to ARTIK.



- The resulting screen output will be blank. Resize the screen as desired.
- Proceed to the **ARTIK Boot-up And Login** section on [page 9](#) below.
-
- Browse to the ARTIK_IDE_Installation_Directory\tools directory.
 - Run the zadig-2.3.exe application.
 - Under **Options**, select **List All Devices**.
 - Under the devices drop-down list, select Interface **1** of the dual COM port.
 - Update the driver to the WinUSB driver by clicking **Replace Driver**.



- Now select Interface **0** of the FTDI device, and change it to a 'libusb' driver.

MACINTOSH SERIAL PORT SETUP

The instructions below are for Macintosh users.

1. Make sure you have completed the [Powering up the Board](#) section, starting on [page 3](#).
2. Go to the Finder **Go** menu and open the **Utilities** folder. Double-click and run the **Terminal** program.
3. Configure the terminal for **150** columns and **45** rows.
4. In **Terminal**, execute the following command:

```
ls /dev/tty.*
```

This will list all of the currently connected USB serial ports. Look for an entry such as "**tty.usbserial-XXXXXXX**", where "XXXXXXX" is a unique identifier (e.g. **tty.usbserial-AI02ZWTO**). This is the ARTIK Development Board's serial connection.

5. Connect to ARTIK by using the following command in the terminal (substitute "XXXXXXX" for the correct ID).

```
screen /dev/tty.usbserial-XXXXXXX 115200
```

6. The resulting terminal output will be blank. Resize the terminal window as desired.
7. Proceed to the section [ARTIK Boot-up And Login](#) beginning on the following page.

ARTIK BOOT-UP AND LOGIN

1. Press the **Power** button (see the illustration in the [Powering up the Board](#) section, starting on [page 3](#)) until the red LED next to the button lights up.
2. The output will look similar to this example:

```
[ OK ] Started Bluetooth service.
bluetooth.service
[ OK ] Started Network Name Resolution.
systemd-resolved.service
[ OK ] Reached target Network is Online.
      Starting LSB: Advanced IEEE 802.11 management daemon...
[ OK ] Started ArtikOnBoarding.
ws-client.service
      Starting /etc/rc.local Compatibility...
[ OK ] Reached target Bluetooth.
[ OK ] Started LSB: Advanced IEEE 802.11 management daemon.
hostapd.service
[ OK ] Started /etc/rc.local Compatibility.
rc-local.service
      Starting Hold until boot process finishes up...
      Starting Terminate Plymouth Boot Screen...
opt-usr-apps-data.mount
[ Booting Done ]

Ubuntu 16.04.4 LTS artik ttyAMA0

artik login: [REDACTED]
```

3. At the login prompt, use:
login = "root"
password = "root" (you will not see the character when you type)
4. The resulting login output will look similar to this example:

```
artik login: root
Password:
Last login: Wed Jan 18 15:47:53 on ttymA3
[root@artik ~] #
```

5. WiFi has been pre-provisioned on your 710 devices. Obtain an IP address with the command below

```
dhclient wlan0
```

6. Do a 'ping' test from your console and take a note of your 710 IP address.

```
[root@localhost ~]# ping www.google.com
PING www.google.com (74.125.28.103) 56(84) bytes of data.
64 bytes from nuq04s18-in-f4.1e100.net (74.125.28.103): icmp_seq=1 ttl=52 time=8.83 ms
64 bytes from nuq04s18-in-f4.1e100.net (74.125.28.103): icmp_seq=2 ttl=52 time=59.9 ms
64 bytes from nuq04s18-in-f4.1e100.net (74.125.28.103): icmp_seq=3 ttl=52 time=17.2 ms
```

(Ctrl-C to terminate)

```
[root@localhost ~]# ifconfig wlan0
wlan0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
        inet 10.0.0.2 netmask 255.255.255.0 broadcast 10.0.0.255
        inet6 2601:647:4e01:7b45:489d:21ff:fe85:6c27 prefixlen 64 scopeid 0x0<global>
        inet6 fe80::4e01:7b45:489d:21ff:fe85:6c27 prefixlen 64 scopeid 0x20<link>
        ether 4a:9d:21:85:6c:27 txqueuelen 1000 (Ethernet)
        RX packets 14769 bytes 20317291 (19.3 MiB)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 0 bytes 311790 (304.4 KiB)
        TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

7. In case you are not able to obtain an IP address, please restart dhclient by following the steps below, then repeat step 2.

```
[root@localhost ~]# dhclient wlan0 -r
Killed old client process
[root@localhost ~]# dhclient wlan0
```