

AVT9152 EVB

Quick Start Guide

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1.0	04 Dec 2020	First Release

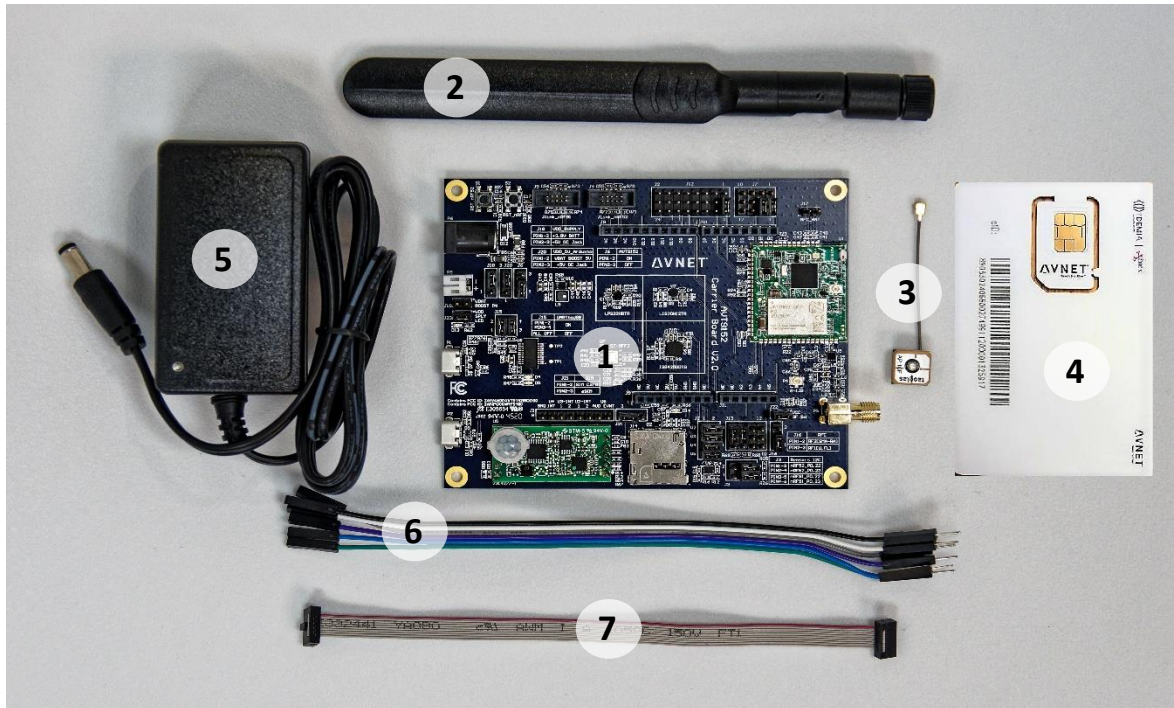
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1 Introduction

This document provides step-by-step guide to connect AVT9152 EVB to the demo web portal.

2 Kit content



An AVT9152 EVB kit includes:

- 1) AVT9152 evaluation board
- 2) External paddle LTE antenna
- 3) Active GPS/GALILEO ceramic patch antenna
- 4) Global eUICC plastic card
- 5) Wall mount universal AC-DC 5V power adaptor
- 6) 6-pin rainbow jumper cable
- 7) 10-pin header J-link ribbon cable

3 eUICC

The eUICC provided comes with FREE subscription plan. This plan expires 3 months after first connection to the network or when 50MB of data quota is consumed whichever comes first. You will need to activate it through <https://www.avnet.com/wps/portal/silica/solutions/technologies/wireless-connectivity/e2c-euicc-to-connect/>.

It provides LTE CAT-M1 coverage in these [regions](#). Please source your own SIM card if your region is not covered or you would want to test using LTE CAT-NB1 network.

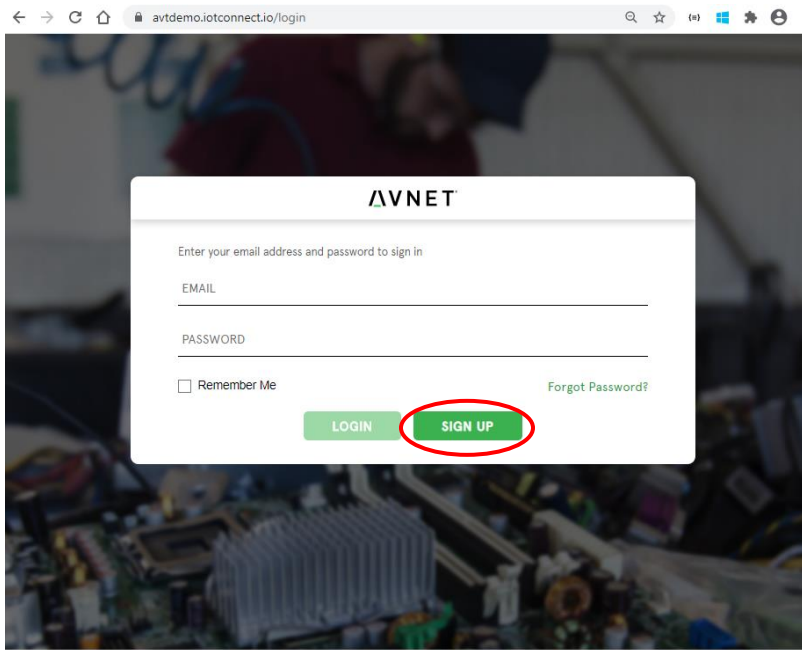
4 AVT9152 EVB demo web portal

This section shows the user how to register to and access AVT9152 EVB unit from [AVT9152 demo web portal](#).

4.1 Sign up for an account

Proceed to [add AVT9152 EVB to demo web portal](#) if you already have an account with the demo web portal.

- 1) Open <https://avtdemo.iotconnect.io/login>.
- 2) Click **SIGN UP**.



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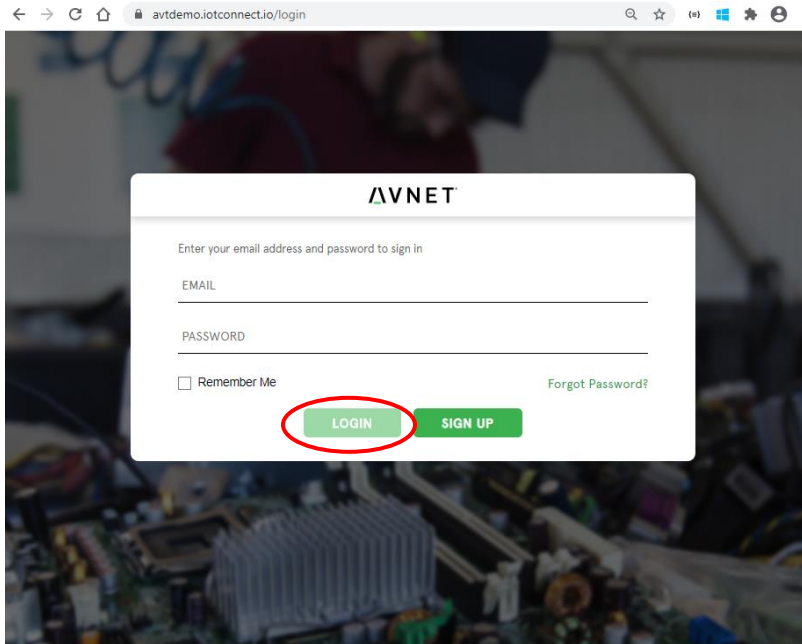
- 3) Fill up the form and click **SIGN UP** to send the request.

The image shows a web browser window with the URL avtdemo.iotconnect.io/signup. The page displays the AVNET sign-up form. The form has the AVNET logo at the top. Below the logo, there are two columns of input fields. The left column contains: First Name (with a red asterisk), Last Name (with a red asterisk), Email Address (with a red asterisk), Postal Code (with a red asterisk), State (with a red asterisk), and Phone Number (with a red asterisk). The right column contains: Company Name (with a red asterisk), Country (with a red asterisk), City (with a red asterisk), and a question 'Are you currently working on a design?' (with a red asterisk). At the bottom of the form, there are two buttons: 'SIGN UP' and 'CANCEL'. The 'SIGN UP' button is highlighted with a red circle. Below the form, there is a small copyright notice: 'Copyright ©2020 All rights reserved.'

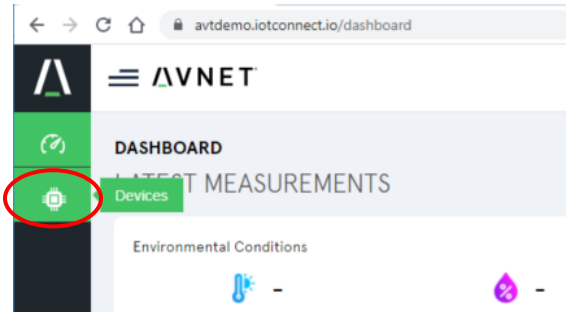
- 4) Wait for the **AVT9152: Successful Sign Up** email from AVT9152 <smtp@softwebopensource.com> for the temporary password. Check your Junk Email folder if you haven't received it after a few minutes.
- 5) Use the temporary password provided to login for the first time then replace with own password for subsequent login.

4.2 Add AVT9152 EVB to demo web portal

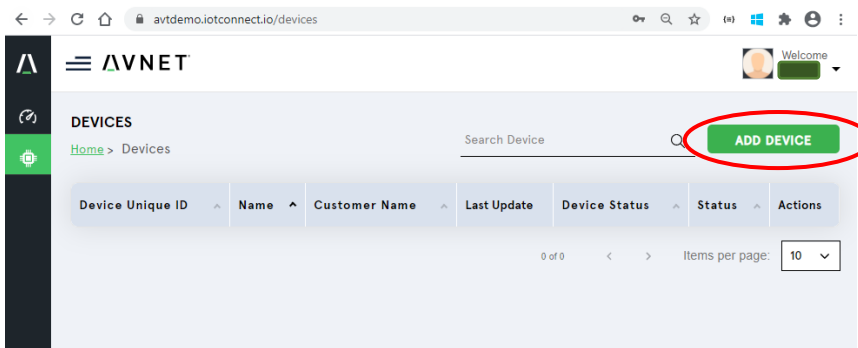
- 1) Open <https://avtdemo.iotconnect.io/login>.
- 2) Fill in your account login details and click **LOGIN**.



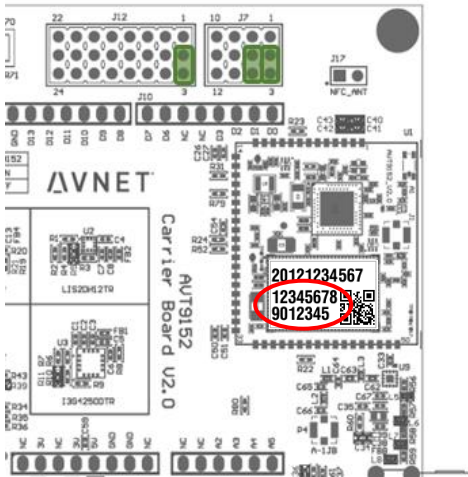
3) Click the **Devices** icon to switch to Devices view.



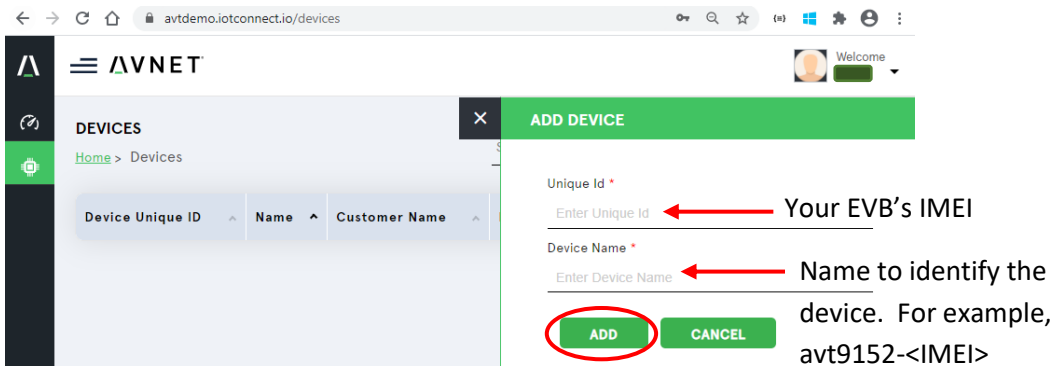
4) Click **ADD DEVICE**.



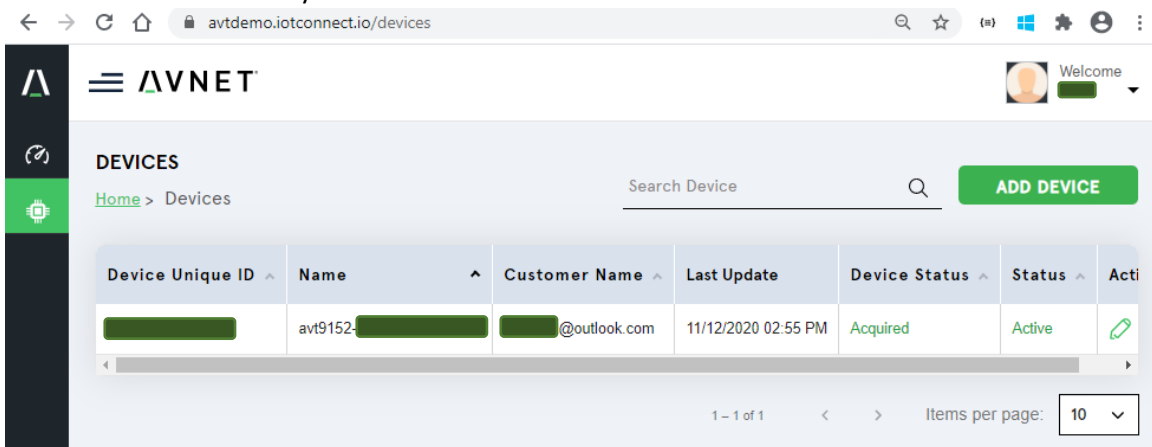
5) Locate your AVT9152 EVB's 15-digit IMEI number.



6) Fill in Device details and click **ADD**.



7) AVT9152 EVB successfully added.



8) Complete [set up AVT9152 EVB](#) to start collecting data.

4.3 Dashboard view

Dashboard view presents the latest data from the selected unit as well as the daily average environmental data for the past 7 days.

4.3.1 Latest measurements

The screenshot displays the AVNET dashboard for device 'avi9152'. The 'Environmental Conditions' section shows: Temperature 30.96°C, Humidity 56.5%, Pressure 1004.41 Pa, and Light 255 Lux. The 'Motion (PIR)' section shows 'Not detected'. The 'Orientation' table lists the last reported orientation as 'Face up' at 3:34:04 PM on Nov 24, 2020. The 'Rotation Speed' table lists the last reported rotation speed as 37.95 rpm at 4:17:49 PM on Nov 24, 2020. The 'GPS Data' section shows the last reported location as Singapore.

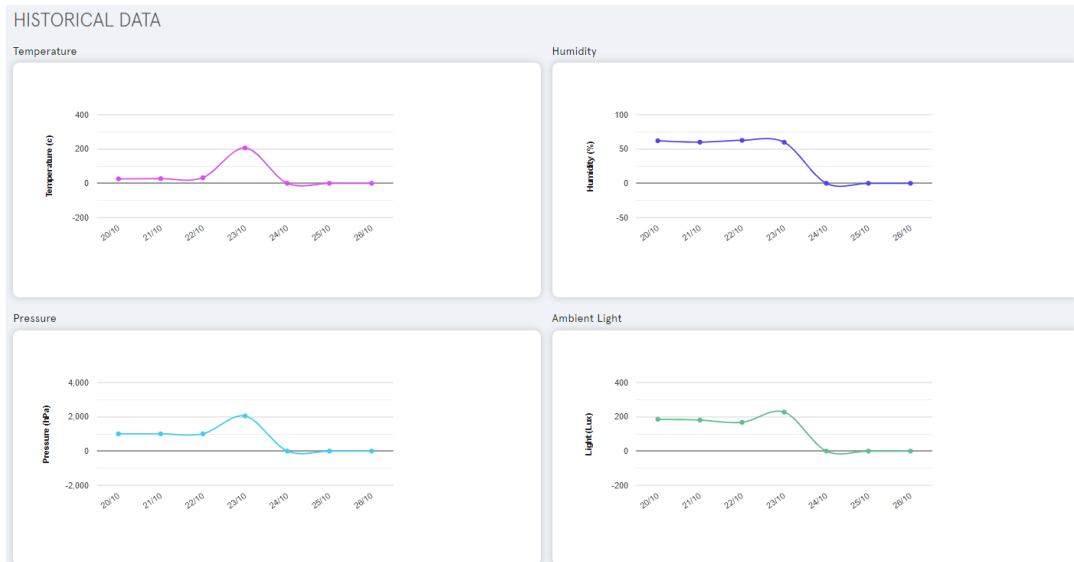
#	Time Stamp	Orientation
1	Nov 24, 2020 3:34:04 PM	Face up
2	Nov 24, 2020 3:34:02 PM	Face up
3	Nov 19, 2020 7:01:46 PM	Face up
4	Nov 19, 2020 6:56:48 PM	Face up
5	Nov 19, 2020 6:56:47 PM	Face up

#	Time Stamp	Speed
1	Nov 24, 2020 4:17:49 PM	37.95 rpm
2	Nov 24, 2020 4:17:47 PM	109.43 rpm
3	Nov 24, 2020 4:17:45 PM	87.62 rpm
4	Nov 24, 2020 4:17:44 PM	97.94 rpm
5	Nov 24, 2020 4:17:43 PM	91.99 rpm

* A green circle on the right of the selected unit's display name indicates the device is connected while a red circle indicates the device is not connected.

** Rotation speed is calculated from the biggest angular change on the z-axis triggered by rotating clockwise or counterclockwise the AVT9152 EVB in a face up position.

4.3.2 Historical data



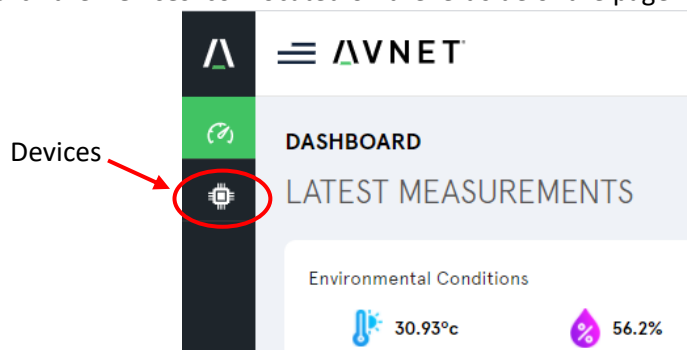
4.4 Devices view

Devices view shows the latest data from the selected device as well as a line chart of the last 20 (max) data points of the selected attribute received from the time this view is loaded.

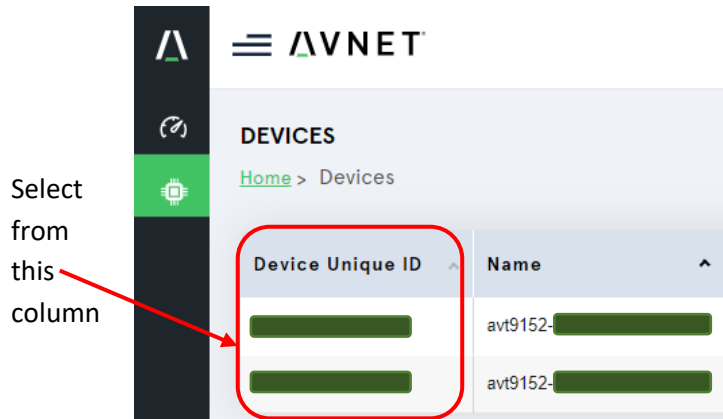
It allows the user to enable/disable the motion (PIR) detection and the GPS location tracking. Both functions are disabled by default from power up/reset.

To switch to Devices view,

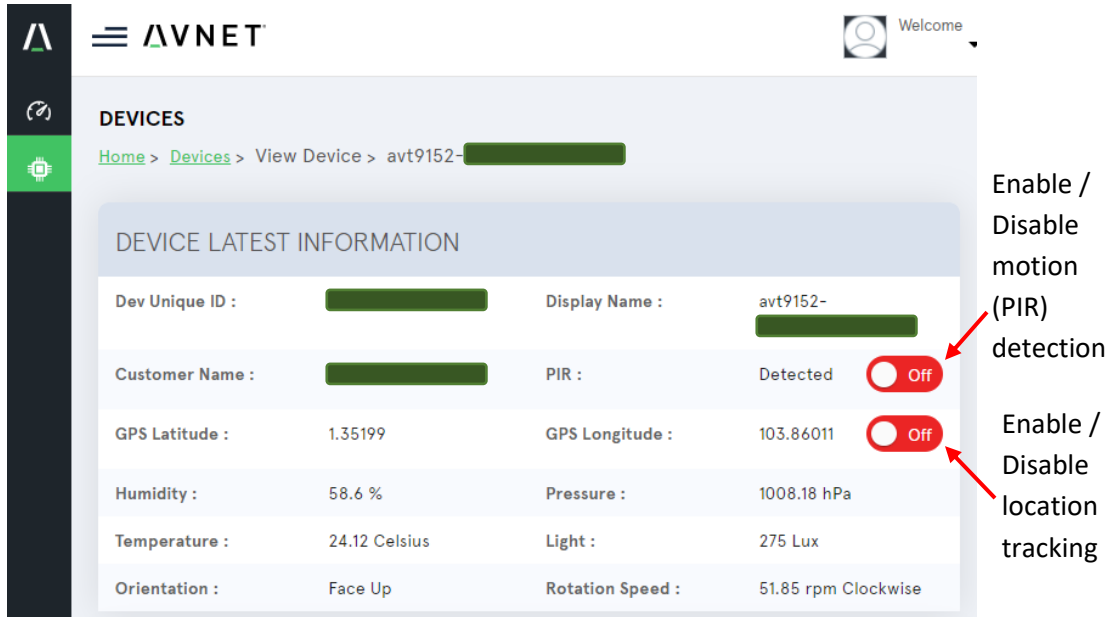
- 1) Click the **Devices** icon located on the left side of the page.



- 2) Click the **Device Unique ID** of the device of interest.



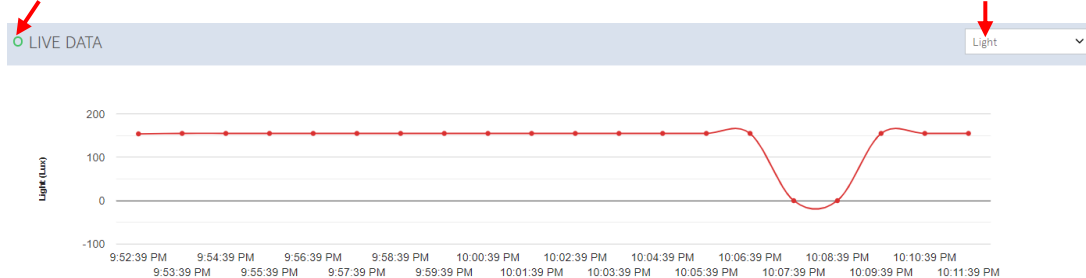
4.4.1 Device latest information



4.4.2 Live data

Connection status

Selected attribute

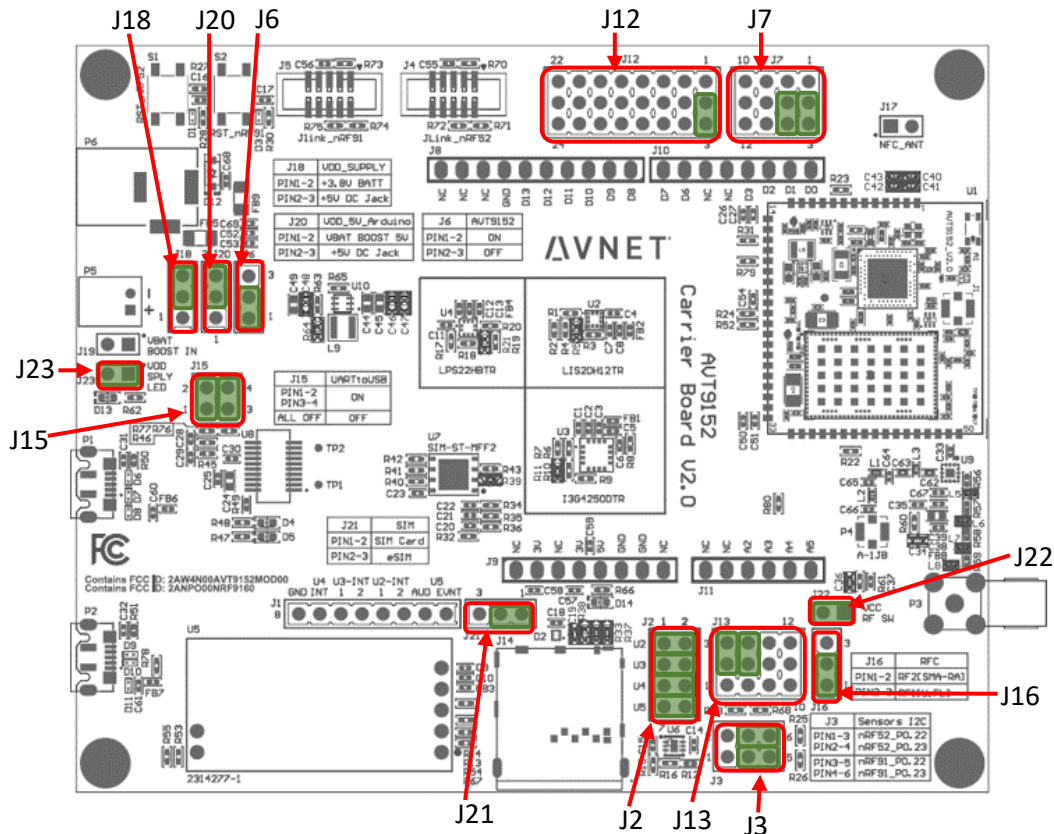


5 Set up AVT9152 EVB

This section provides a step-by-step guide on how to prepare AVT9152 EVB to start sending data to [AVT9152 demo web portal](#) for the out-of-box demo.

5.1 Make sure the following jumpers are in place

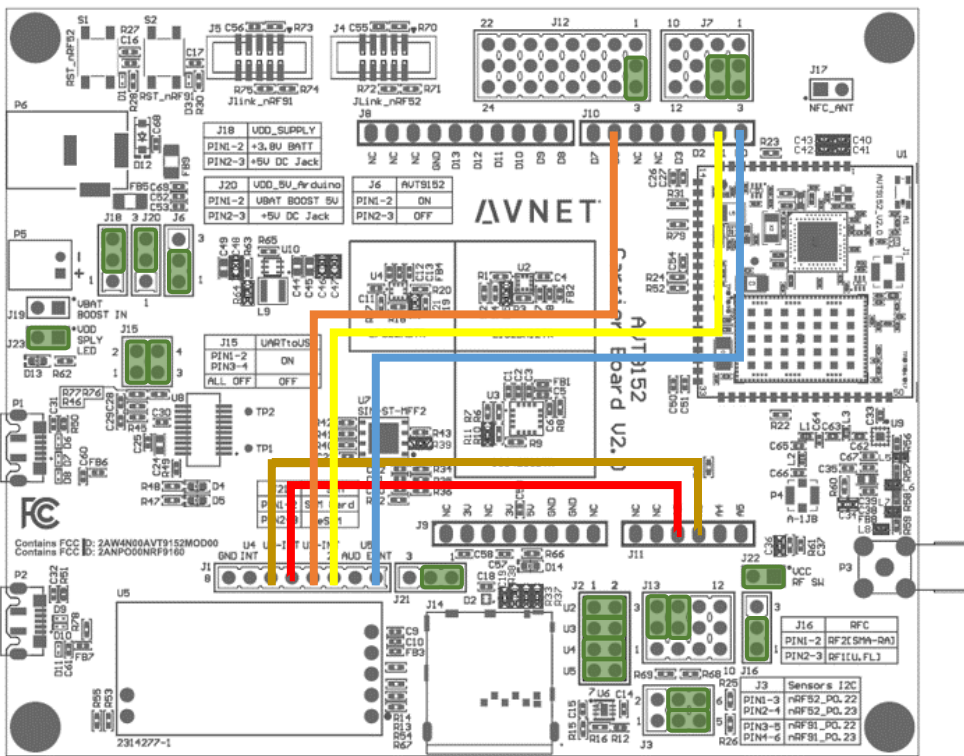
AVT9152 EVB is shipped with jumpers on their default positions described in this section. User may go straight to [connect the following pins with jumper wires](#) if no jumper has been altered.



Header : Pin	Purpose
J18 : 2-3	Set 5V DC Jack as the VDD_Supply source
J20 : 2-3	Set 5V DC Jack as the VDD_5V_Arduino source
J6 : 1-2	Enable AVT9152 module
J16 : 1-2	Set to use SMA Antenna
J2 : 1-2	Enable U2 LIS2DH12
J2 : 3-4	Enable U3 I3G4250D
J2 : 5-6	Enable U4 LPS22HB
J2 : 7-8	Enable U5 2314277-1
J3 : 3-5	Connects SENS_SCL nRF9160 P0.22
J3 : 4-6	Connects SENS_SDA nRF9160 P0.23
J7 : 2-3	Connects D0 to nRF9160 P0.15

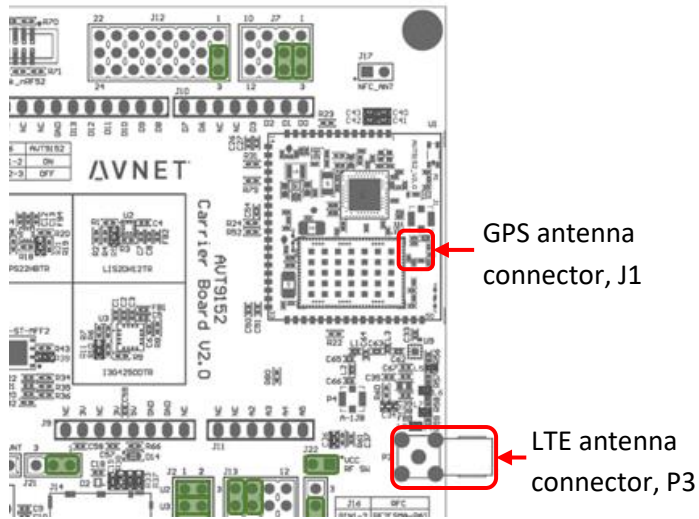
J7 : 5-6	Connects D1 to nRF9160 P0.16
J12 : 2-3	Connects D6 to nRF9160 P0.20
J13 : 2-3	Connects A2 to nRF9160 P0.13
J13 : 5-6	Connects A3 to nRF9160 P0.14
J15 : 3-4	Connects UART_TX to nRF9160 P0.25 for USB-to-UART on P1
J15 : 1-2	Connects UART_RX to nRF9160 P0.24 for USB-to-UART on P1
J21 : 1-2	Connects SIM_IO to SIM card connector
J22 : 1-2	Enable power to RF Switch
J23 : 1-2	Enable D13 (will turn on when VDD_Supply is available)

5.2 Connect the following pins with jumper wires

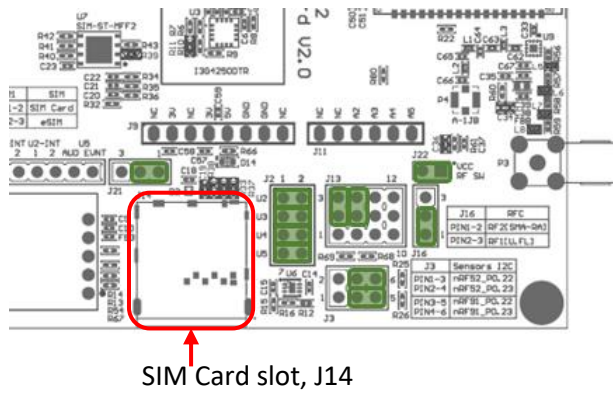


Arduino IO	J1 Sensor Header	Function
D0	PIN 1	PIR Motion INT
D1	PIN 3	LIS2DH12 INT1
D6	PIN 4	LIS2DH12 INT2
A2	PIN 5	I3G4250D INT1
A3	PIN 6	I3G4250D INT2

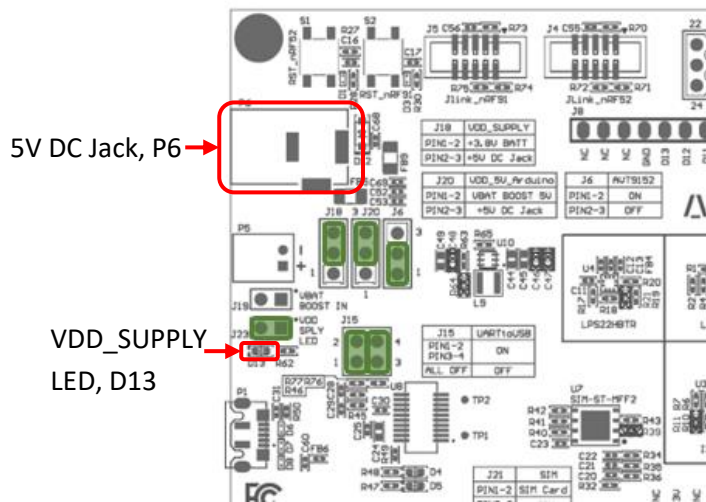
5.3 Attach provided GPS and LTE antenna



5.4 Insert LTE CAT-M1 or CAT-NB1 SIM card



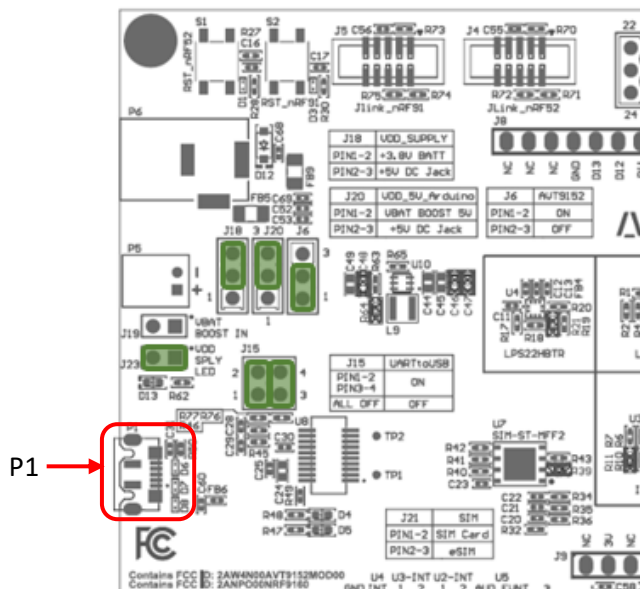
5.5 Turn on AVT9152 EVB



Connect the provided 5V DC adaptor to P6 and switch it on.

D13 LED shall be lit to indicate the EVB is powered.

5.6 Connect to PC



Connect P1 to your PC with a micro USB cable. This will provide a virtual COM port interface for AVT9152 to send and receive data to and from a terminal program.

Virtual COM port driver can be downloaded from <https://www.ftdichip.com/Drivers/VCP.htm>.

AVT9152 EVB ships with pre-programmed demo software (source code available at https://github.com/Avnet/AVT9152_DEMO).

