ARDUINO MKR NB 1500 STARTER GUIDE

THANKS FOR PURCHASING OUR ARDUINO OFFER.

Our introductory offer is a great opportunity for you to get some hands-on IoT developer experience and get cracking on that project you've always had in mind! Let us know what you're working on by emailing: *telstradev@team.telstra.com*

This guide will help you get started and complete the required tasks to prepare your kit and SIM card. The following sections all assume you've purchased an *Arduino MKR NB 1500 kit through our developer centre*.

GET STARTED

Chapter 1

GETTING STARTED

ACTIVATE YOUR SIM(S)

Once you have received your kit, the SIM card should be activated already. But in some conditions, that might not have happened. We will see how to find that out in the following sections.

If that's the case, please contact *TelstraDev* and we can check the status of your SIM. Please provide your ICCID number which is on the back of your SIM card.

Chapter 2

THE KIT

PRE-REQUISITES

Arduino IDE

To get started you need to have access to the **Arduino IDE** . The Arduino Software (IDE) allows you to write programs and upload them to your board. In the **Arduino Software page** you will find two options:

1. If you have a reliable Internet connection, you can use the **online IDE** (Arduino Web Editor). It will allow you to save your sketches in the cloud, having them available from any device and backed up. You will always have the most up-to-date version of the IDE without the need to install updates or community generated libraries.

2. If you would rather work offline, you should use the latest version of the **desktop IDE**.

Our preferred option is to install the desktop IDE locally on your machine, since you will need to install a few libraries which you need to work with regularly.

The MKRNB library

Once you've installed the IDE, you will need to add **the MKRNB library**. To install a new library into your Arduino IDE you can use the **Library Manager** (available from IDE version 1.6.2). Open the IDE and click to the "Sketch" menu and then *Include Library > Manage Libraries*.
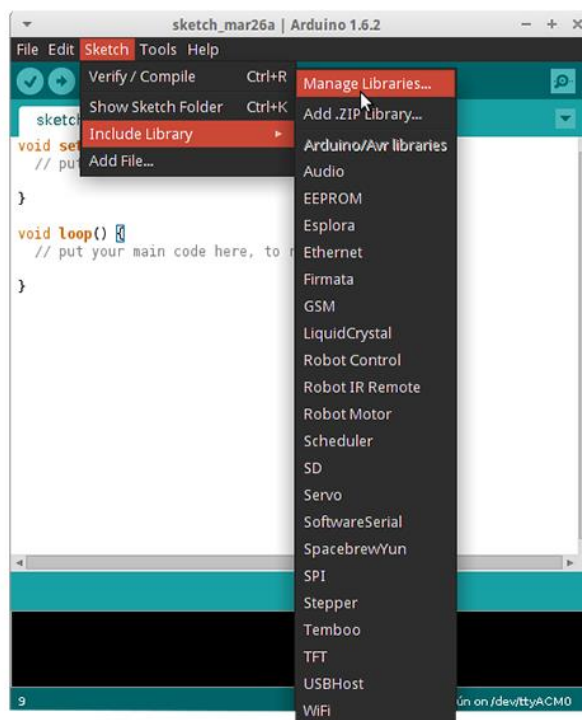
Then the Library Manager will open, and you will find a list of libraries that are already installed or ready for installation. In this example we will install the Bridge library. Scroll the list to find it, click on it, then select the version of the library you want to install. Sometimes only one version of the library is available. If the version selection menu does not appear, don't worry it is normal.
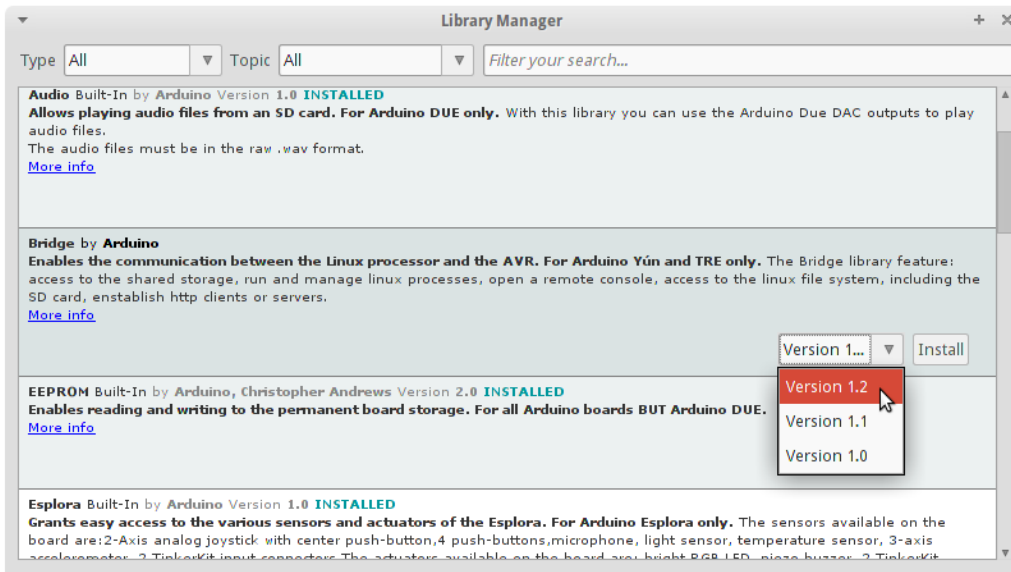
In the filter your search box, type MKRNB and press enter. The library will appear in the result, then click install and wait for it to finish.

Connect your board to your computer

First thing first you need to connect your board to your computer. You could use a micro-USB cable from one of your android devices or buy one if you don't have any. You will see the USB port clearly on the side, connect the micro-USB side to the board and plugin the USB-A side to your computer.
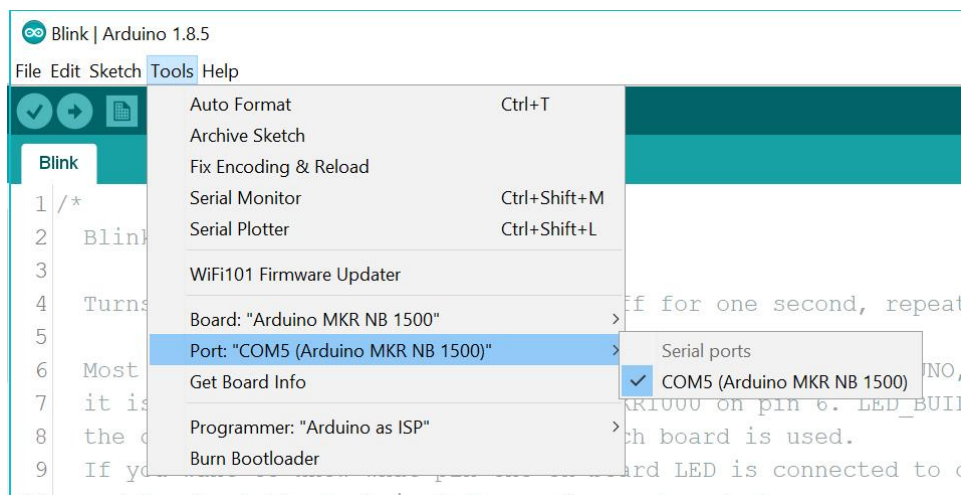

Select the correct board and serial port

You need to select the correct board from *Tools > Board > Arduino MKR NB 1500*.
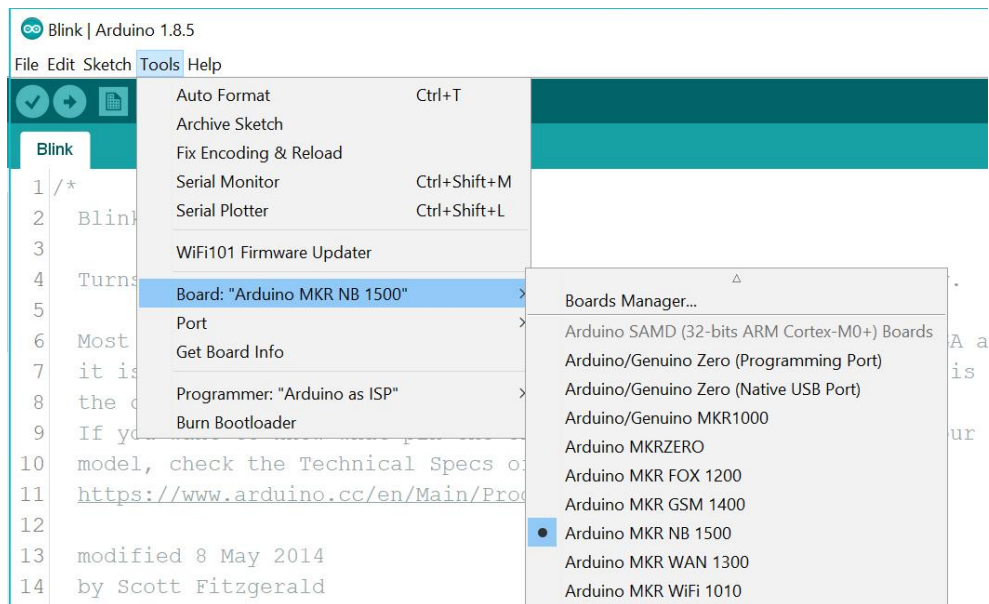
Once selected open the port menu just below that and select the serial port which is occupied by the board.

Open your first sketch

Go to File on the Arduino Software (IDE) and open the Examples tree; select 01. Basic and then Blink

This sketch just flashes the built in LED connected to Digital pin LED_BUILTIN on and off every second, but it is very useful to practice the loading of a sketch into the Arduino Software (IDE) and the Upload to the connected board.

Upload the program

Press the second round icon from left on the top bar of the Arduino Software (IDE) or press Ctrl+U or select the menu Sketch and then Upload.
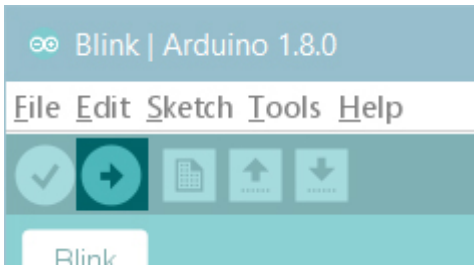
The sketch will be compiled and then uploaded. After a few seconds the bottom bar should show *Done Uploading*. You have successfully set up your MKR NB 1500 board and uploaded your first sketch.

ASSEMBLE THE KIT

Antenna

The kit comes with an external antenna which you should attach to the board. Keep in mind not to detach and attach many times as it might stop working. Once attached, keep it that way. To set this up, you need to attach the antenna's connector to the kit. If you hold the kit in a way that the micro USB is pointing to your right, the antenna would be attached to the tiny connector port on the far left.
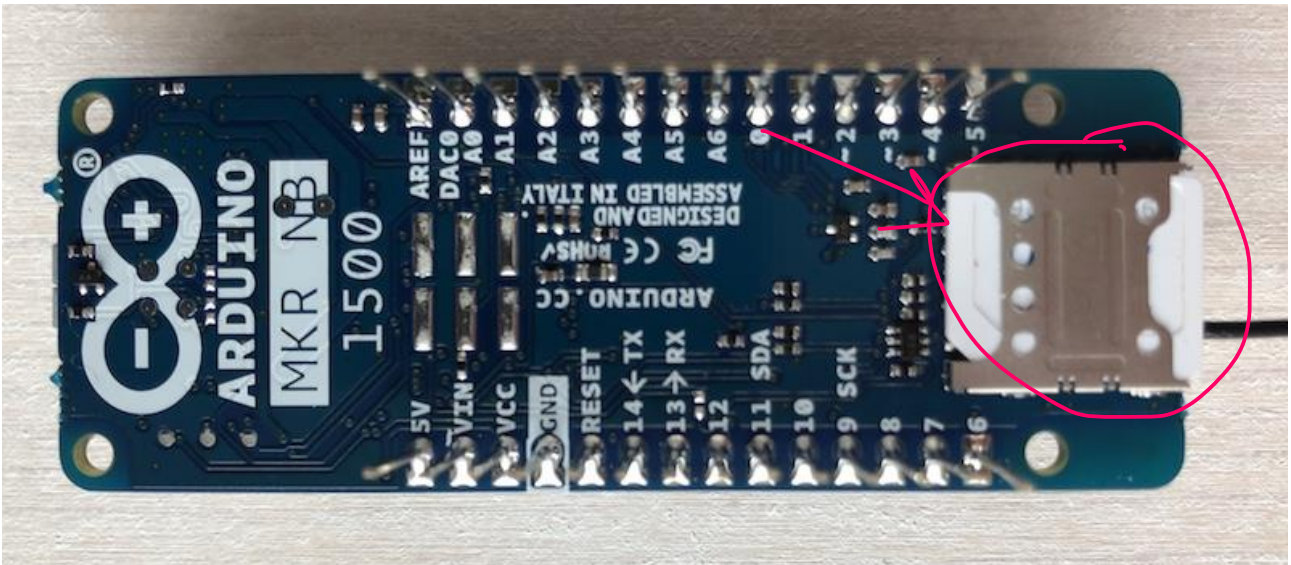

Gently put the connector at the end of antenna's wire on top of the board's antenna port and press down. Once done, it should look like below:

Insert SIM

You should insert the accompanied SIM card in the slot directly underneath the antenna port at the back of the board.


And you're ready to go.

SET THE CORRECT RADIO ACCESS TECHNOLOGY

We had many customers facing connectivity issues when they were trying to use the board, and we know that in 99% of the cases, the issue is because the correct radio access technology should be set on the board. Fortunately, there is a ready to use sketch in the library you installed earlier which allows you to easily fix this issue.

Load the example

First load the ChooseRadioAccessTechnology sketch into your kit by selecting *File > Examples > MKRNB > Tools > ChooseRadioAccessTechnology*. Once opened, click on the load button and wait for it to get loaded.
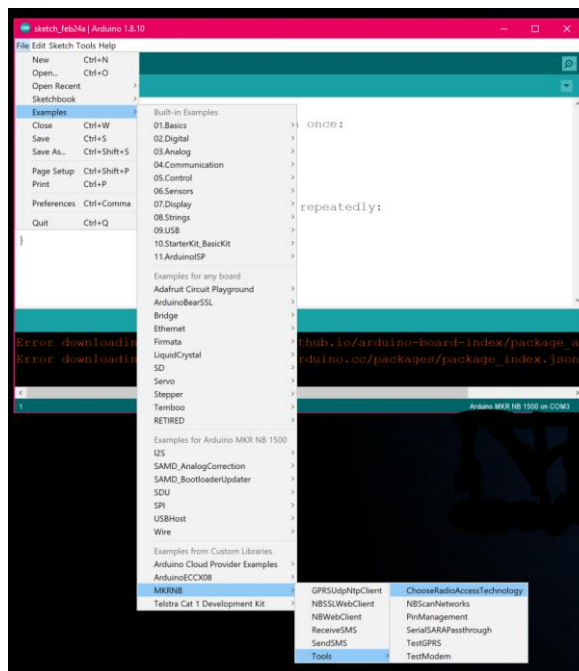
Once loaded, you will need to open your serial monitor window by selecting *Tools > Serial Monitor*.
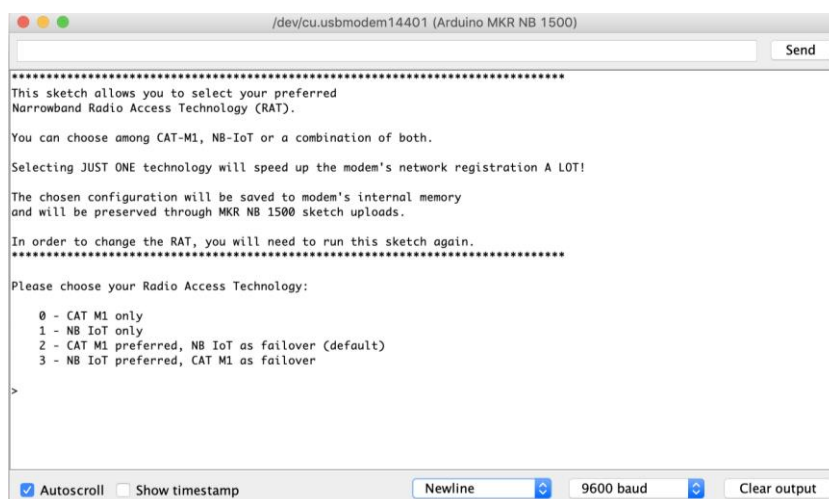
Enter 2 in the test box at the top and press send. This will activate option 2, CAT M1 preferred, and narrow band IoT as failover. Once you see the done message, you're ready to test your connectivity.

TEST CONNECTIVITY

Load the WebClient example

In order to test the connectivity we suggest you use the *NBWebClient example* from the MKRNB library. Like before open the example by selecting File > Examples > MKRNB > *NBWebClient.*

Once opened, click on load button and wait for the sketch to be loaded to your board. Open your serial monitor and if everything is setup properly, you should see example.com printed into your serial monitor logs.

TROUBLESHOOTING

At any stage in your development, if you get stuck or come across some errors, check out our online resources:

- Review the *Frequently Asked Questions*
- Read the posts on our *TelstraDev forum* and the *TelstraDev blog*
- *Join the community* with our good friends at Arduino

If you're REALLY stuck, post your problem on our *TelstraDev forum*, or *send us an email.*

SUMMARY

We saw in this guide how to go from receiving your kit, all the way to testing your connectivity using our Cat-M1 network. Now it is your turn to explore ideas and create something using this great technology combo at your disposal.

We want to share your projects, no matter how big or small, to continue inspiring developers in the IoT community. You could sit alongside our case studies, how to's, guides and project ideas, on the *TelstraDev marketplace*. Let us know what you're working on by emailing: *telstradev@team.telstra.com*