

POEM IoTa Quickstart Guide

Instructions for Running Serial Port Commands

(NOTE: This document is derived from the documentation for the Hologram DASH. References to the DASH as a module as now replaced by IoTa, but software names will still contain the legacy “dash” nomenclature. (e.g. “dash_repl_basic”).

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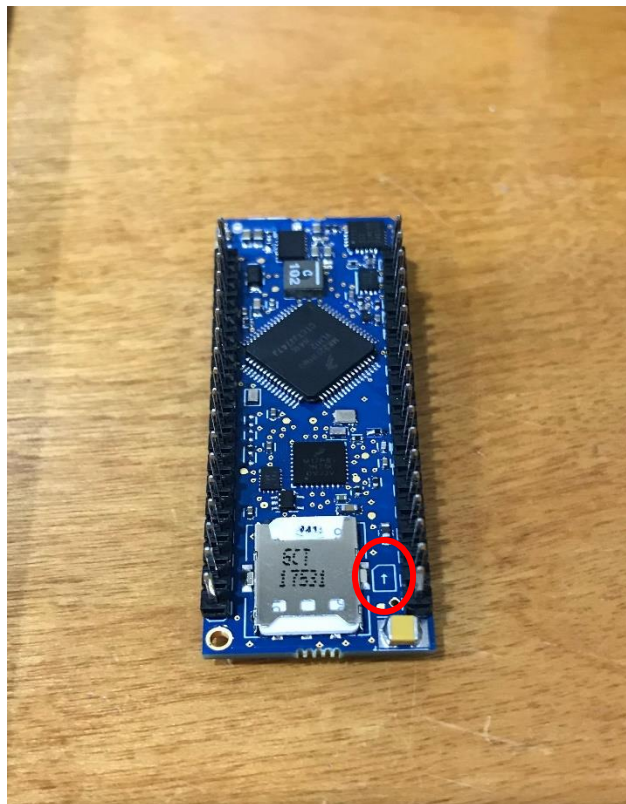
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I. SIM Card Management

Inserting SIM Card:

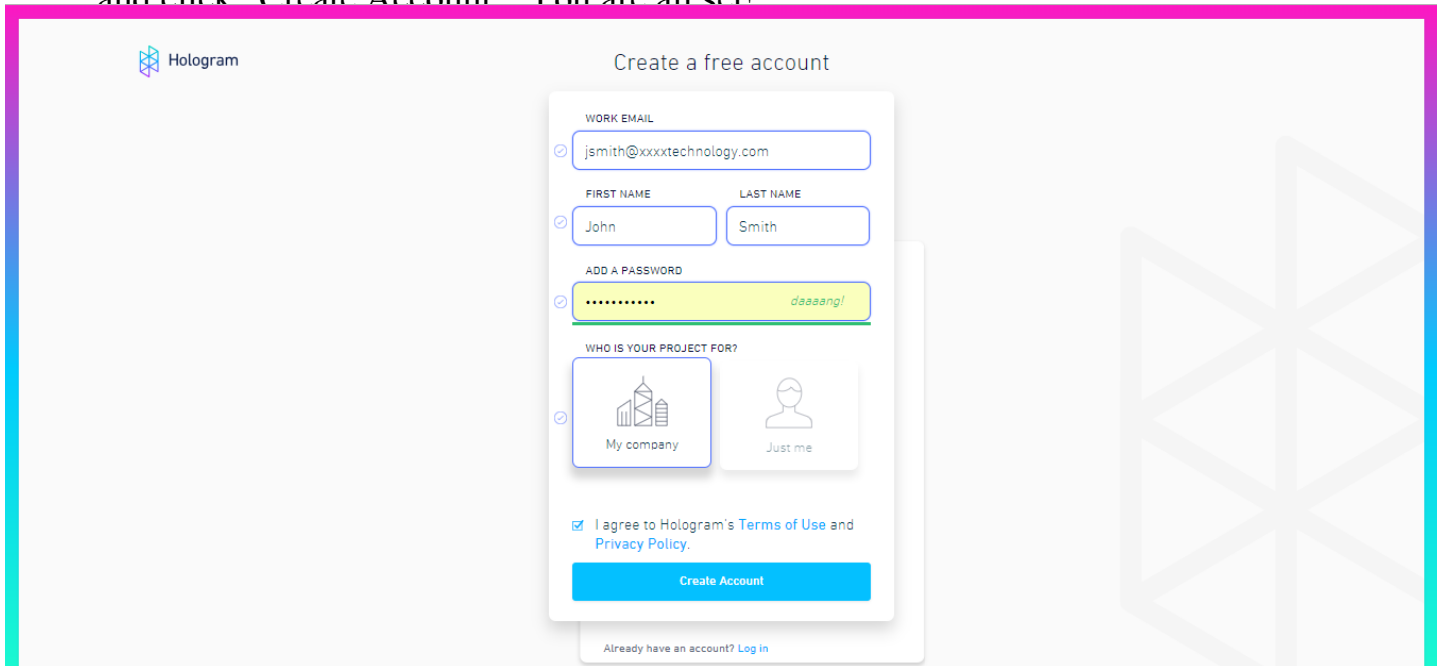
To properly insert your SIM card, pop it out of the carrier card and insert it into the back of the IoTa in the small silver compartment that is the same size as the SIM. There is a small image of the SIM card next to the compartment that details the orientation it should be inserted.

Orienting SIM Card:



Creating a Hologram Account:

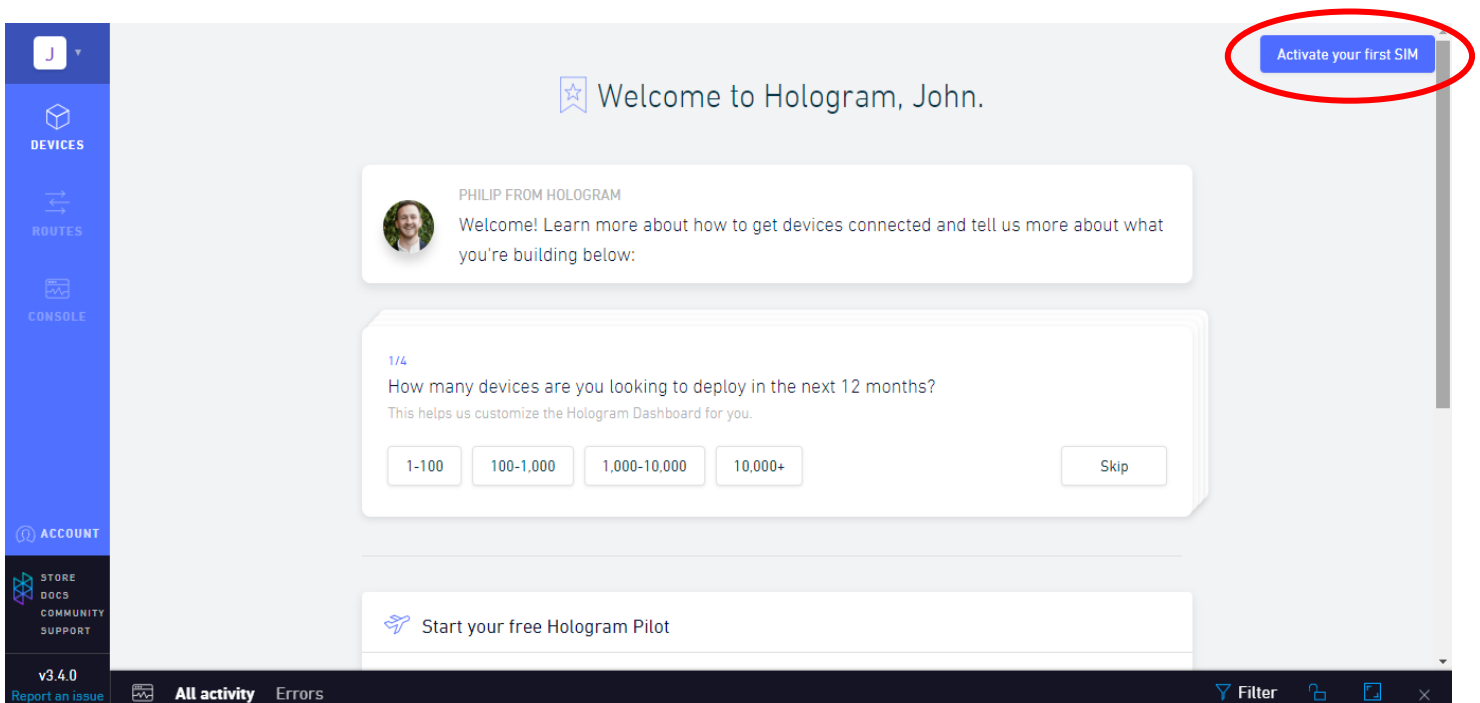
Go to <https://dashboard.hologram.io/> and create a new account. Enter your personal information and create a password. Select if your project is for your company or for yourself. Agree to Hologram's Terms of Use and Privacy Policy, and click "Create Account." You are all set!



The screenshot shows the 'Create a free account' form on the Hologram dashboard. The form includes fields for 'WORK EMAIL' (jsmith@xxxxtechnology.com), 'FIRST NAME' (John), 'LAST NAME' (Smith), and 'ADD A PASSWORD' (daaaang!). Below these is a section 'WHO IS YOUR PROJECT FOR?' with two options: 'My company' (selected) and 'Just me'. At the bottom, there is a checkbox for 'I agree to Hologram's Terms of Use and Privacy Policy.' and a blue 'Create Account' button. A link for 'Already have an account? Log in' is at the very bottom.


Activating SIM Card:

Once you log in, there is a blue button at the top right corner labeled "Activate your first SIM." Click this button to get started.



The screenshot shows the Hologram dashboard after login. The top right corner features a blue button labeled "Activate your first SIM," which is circled in red. The dashboard includes a sidebar with navigation links: DEVICES, ROUTES, CONSOLE, ACCOUNT, STORE, DOCS, COMMUNITY, and SUPPORT. The main content area displays a welcome message from Philip from Hologram, a survey question "How many devices are you looking to deploy in the next 12 months?" with radio button options (1-100, 100-1,000, 1,000-10,000, 10,000+, and a Skip button), and a "Start your free Hologram Pilot" button. The bottom of the dashboard shows the version "v3.4.0" and a status bar with "All activity" and "Errors" indicators.

There are multiple payment plans to choose from, including a free Pilot Plan for your first SIM. Other plans have various prices and data sizes.

 **Activation** — 1 Choose plan — 2 Add SIMs — 3 Add Payment — 4 Review ✕

Select Plan Select Plan

Plan

Flexible Data

- ✓ A single plan with global coverage
- ✓ Pay-as-you-go or use data pools
- ✓ Volume discounts as you scale

STARTING AT
\$1.50
DEVICE / MO

High Bandwidth


- ✓ Starting at 250mb per month
- ✓ Billed monthly, lower per KB rate
- ✓ Available in the US and Globally

STARTING AT
\$7.50
DEVICE / MO

Coverage


Global ↗ View Coverage Map


The next step is adding your SIM card's number. This number is located below the gray barcode on the card your SIM came inside.

 **Activation** — 1 Choose plan — 2 Add SIMs — 3 Add Payment — 4 Review ✕

Add SIMs Back to Plans Add Sims

SIMs




99900123450004598765

The SIM number is an 18-22 digit code on the back of your SIM card.

Enter SIM numbers separated by commas, spaces, or line breaks

Ordered a 100-pack or more of SIM cards?

Get Help Activating

You have the option of customizing your SIM's name, or giving it a tag for future reference.

Activation — 1 Choose plan — 2 Add SIMs — 3 Add Payment — 4 Review

Add SIMs

Back to Plans Add Sims

DEVICE			
<input type="checkbox"/>	Eratz-Raven (12345)	●	-
<input type="checkbox"/>	Eratz-Raven (67890)	●	-

Add a name that gets applied to each SIM upon activation. We recommend making the name centric to the hardware version, end-user, geographical location, or similarly memorable. We generated a fun one for you.

brown-raccoon

Assign tags

Tags can be used as a flexible organizational method. Use tags to designate physical SIM location, assigned client, or type of hardware used.

gray-raccoon

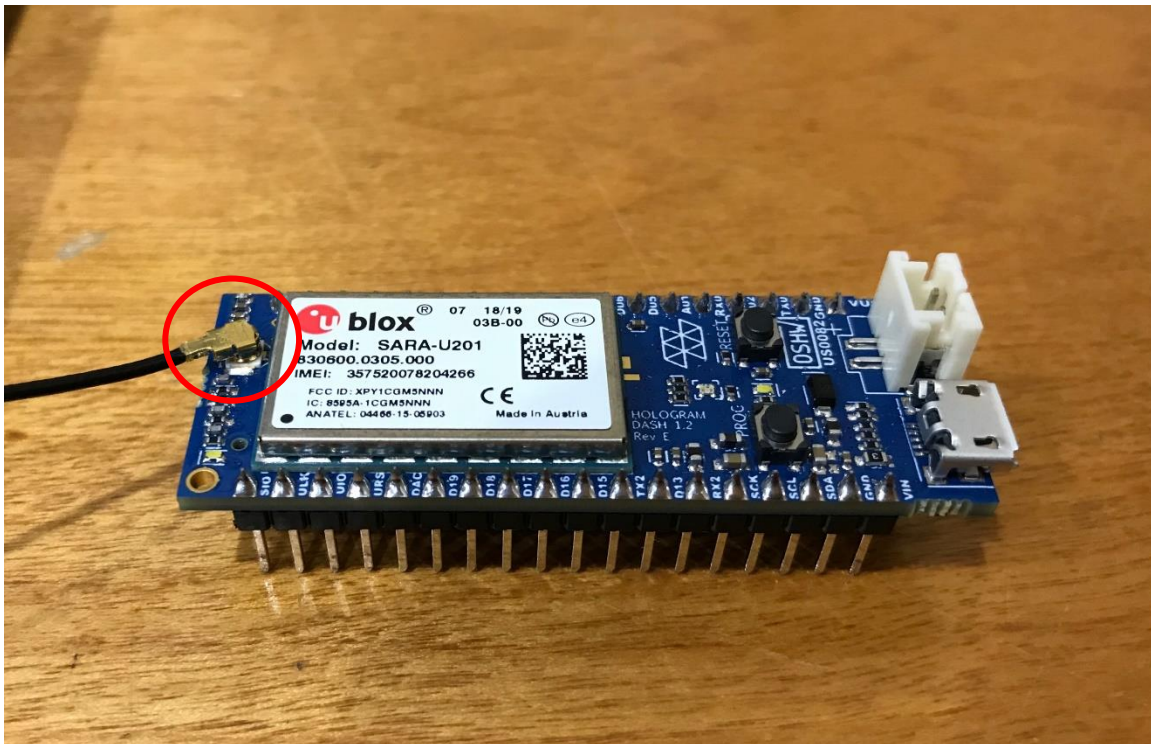
Enter your payment info. You can review your information before confirming your order. Congrats! You have activated your first SIM card.

II. IoTa Setup

Plug the supplied USB cable onto the IoTa and then into a port on your computer.

Attach the u.fl connector from the antenna to the mating connector on the IoTa to the left of the white ublox modem. The connector should mate with a snap or a click.
Your IoTa is set up!

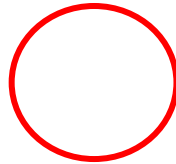
Attaching the antenna:



Plugging in the USB cable:

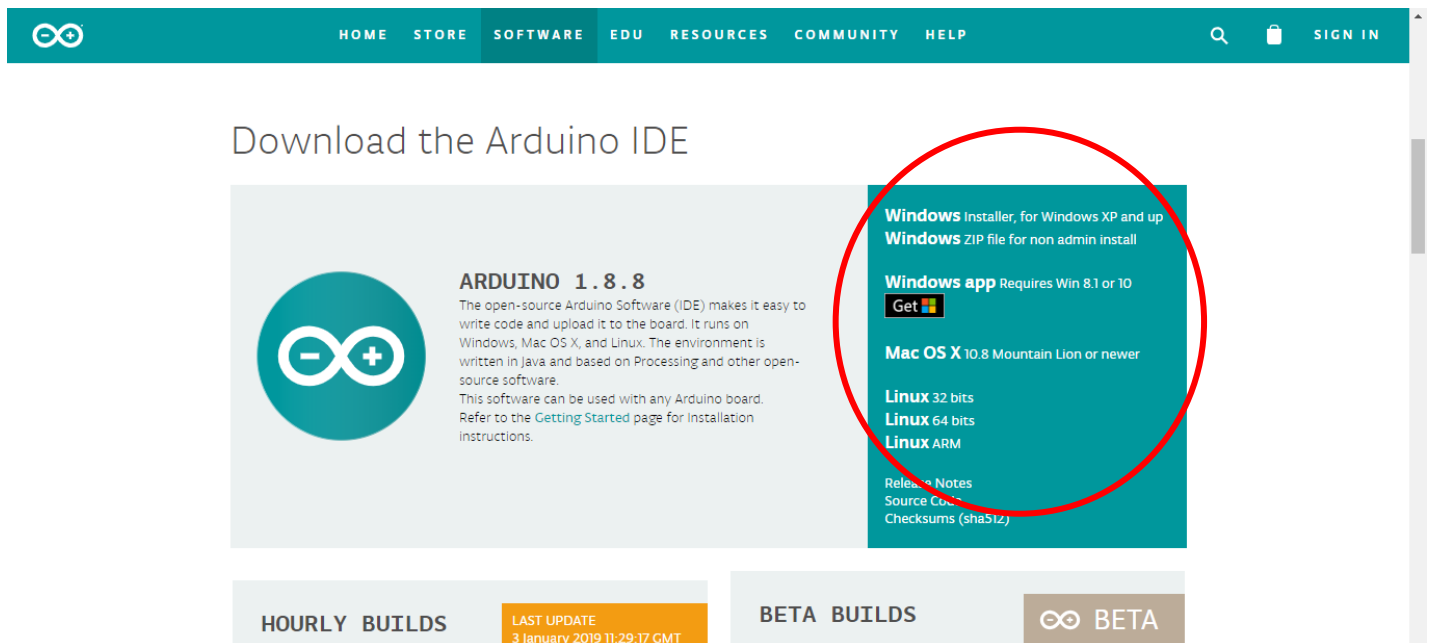


III. REPL Program



Installing the Arduino IDE:

Use the link [Arduino.cc](https://arduino.cc) to begin installation. Choose the Windows, Mac, or Linux option that works best for you.

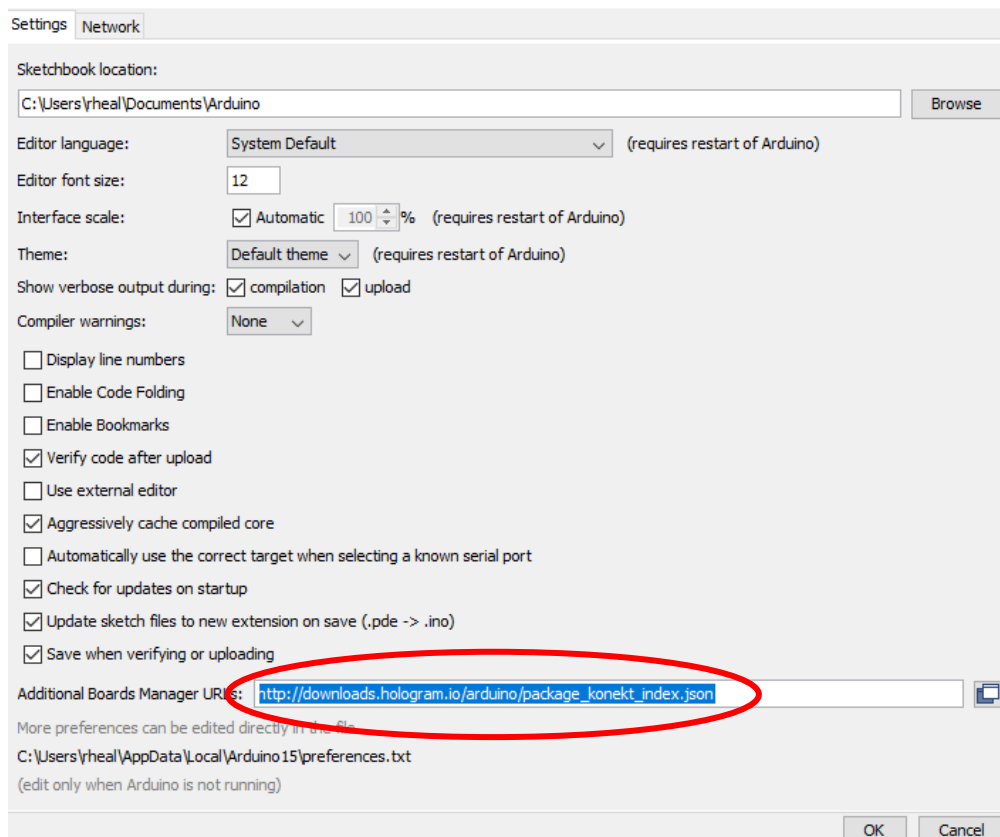


Go to the “Preferences” window (under “File” for Windows and Linux users).

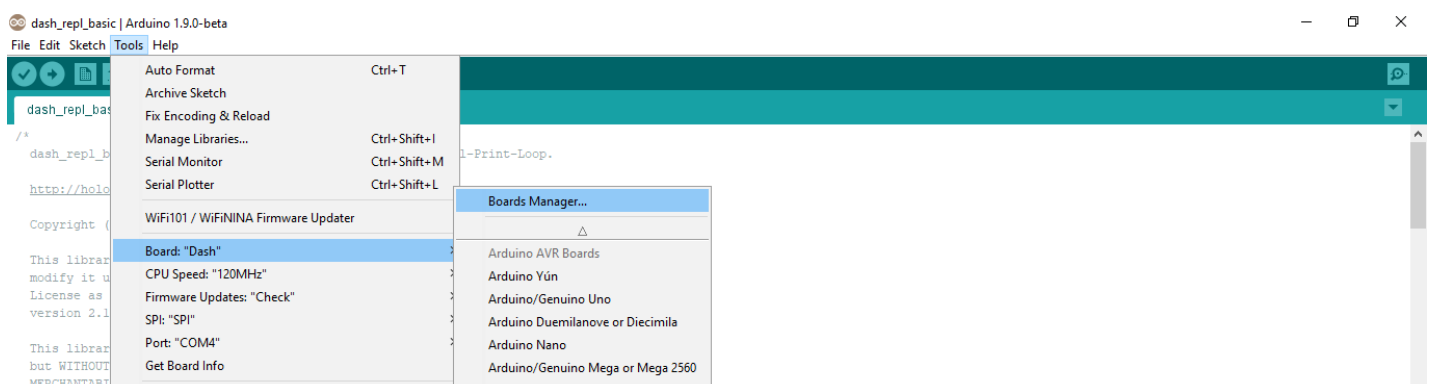


Enter the following URL in the input labeled “Additional Board Manager URLs.”:

http://downloads.hologram.io/arduino/package_konekt_index.json



Install the IoTa’s board files by opening the “Board Manager.” This tab is under “Tools,” and then under “Board.”

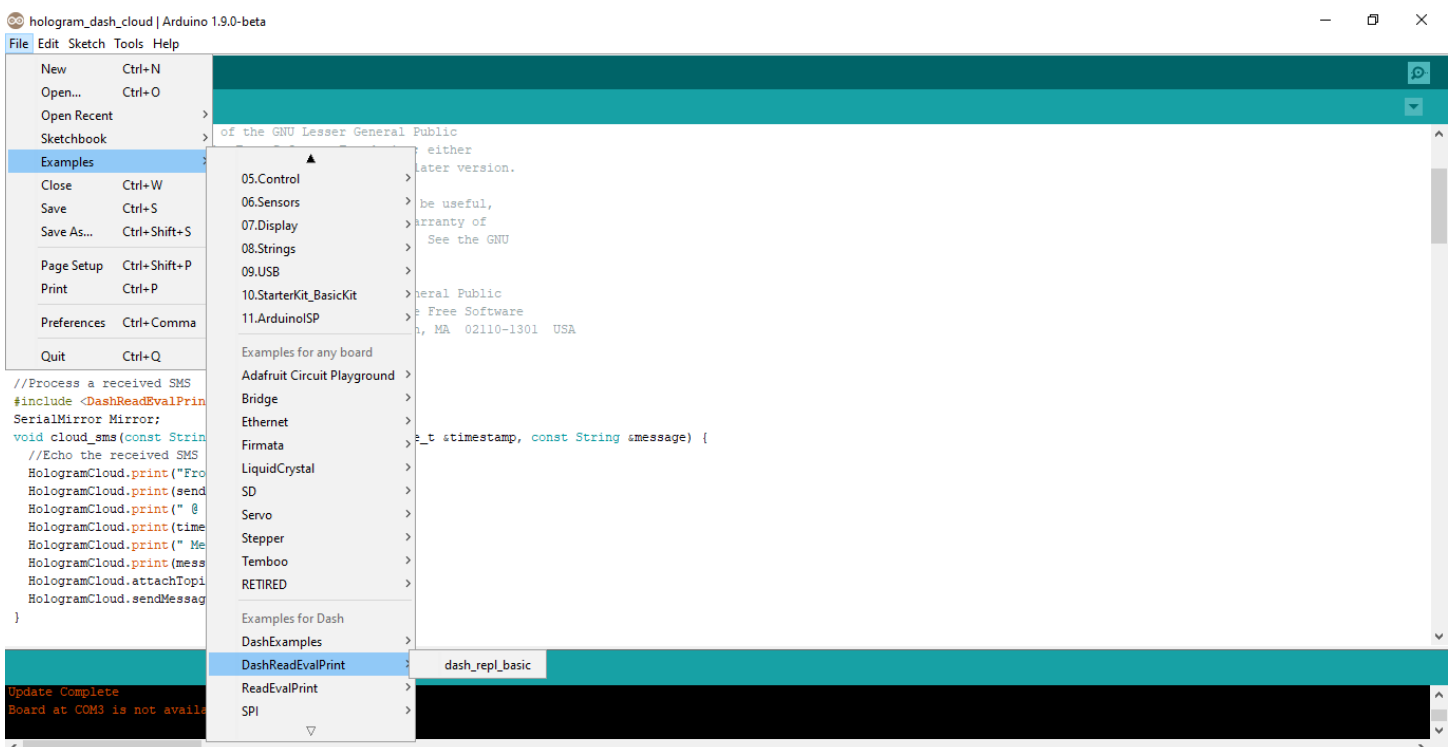


Choose the “Contributed” option in the “Type” drop down menu. Then, select “Konekt Dash/Dash Pro Boards.” Click “Install” and close the Boards Manager when installation is finished.

Confirm you have the latest version of the IoTa libraries by going to “Boards Manager” again (“Tools” → “Board” → “Board Manager”). Click “Updateable” in the “Type” dropdown menu and if the list contains “Hologram Dash,” update to the most recent version.

Uploading dash_repl_basic:

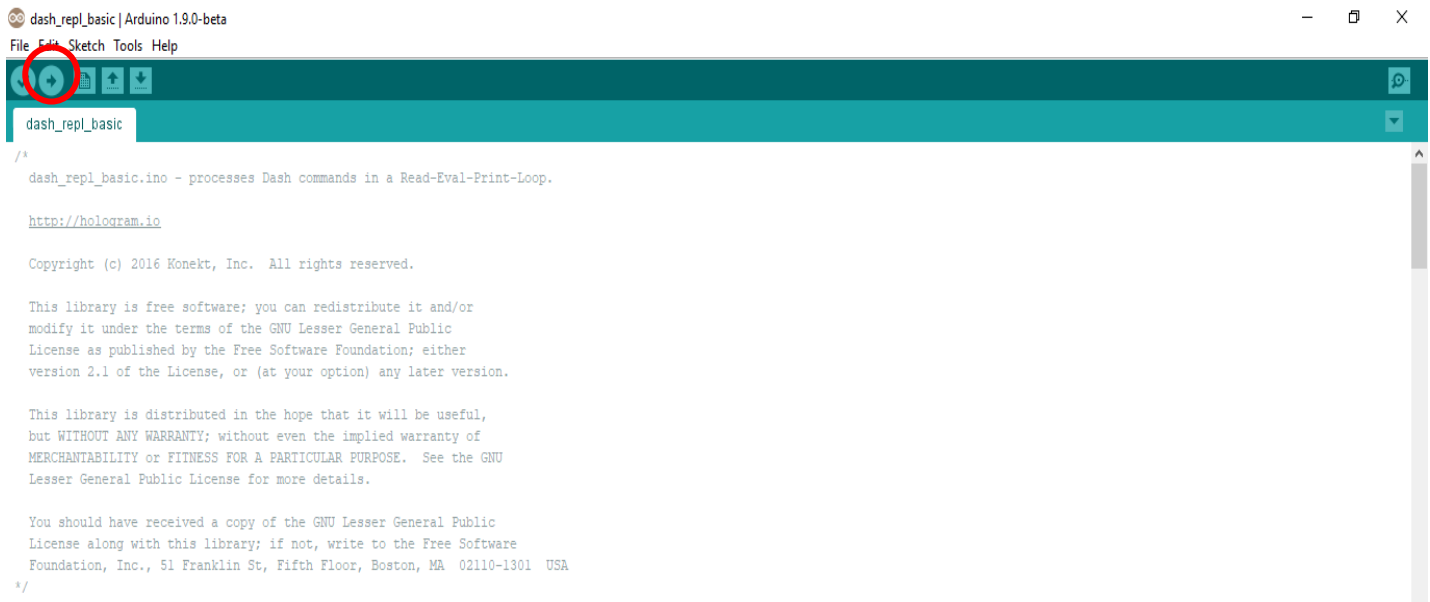
Go to “File,” “Examples,” and “DashReadEvalPrint.” There is a program called “dash_repl_basic” in this tab, and this program will let you send commands directly to the IoTa. Open this program.



Connecting the IoTa:

Press the “PROG” button on the IoTa, which is the small black pushbutton that says PROG in white letters above it. A white LED light should start flashing on the IoTa.

Click the dark blue arrow at the top left of the Arduino IDE, which should automatically compile and upload the program to your device.



```
dash_repl_basic | Arduino 1.9.0-beta
File Sketch Tools Help

dash_repl_basic

/*
  dash_repl_basic.ino - processes Dash commands in a Read-Eval-Print-Loop.

  http://hologram.io

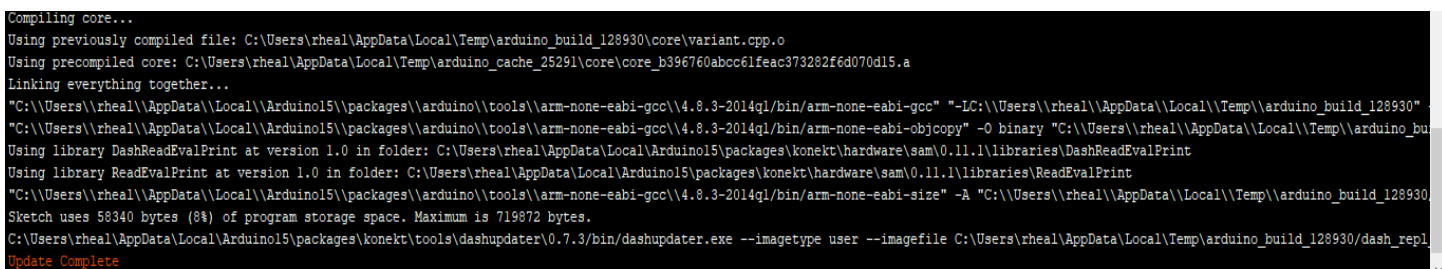
  Copyright (c) 2016 Konekt, Inc. All rights reserved.

  This library is free software; you can redistribute it and/or
  modify it under the terms of the GNU Lesser General Public
  License as published by the Free Software Foundation; either
  version 2.1 of the License, or (at your option) any later version.

  This library is distributed in the hope that it will be useful,
  but WITHOUT ANY WARRANTY; without even the implied warranty of
  MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU
  Lesser General Public License for more details.

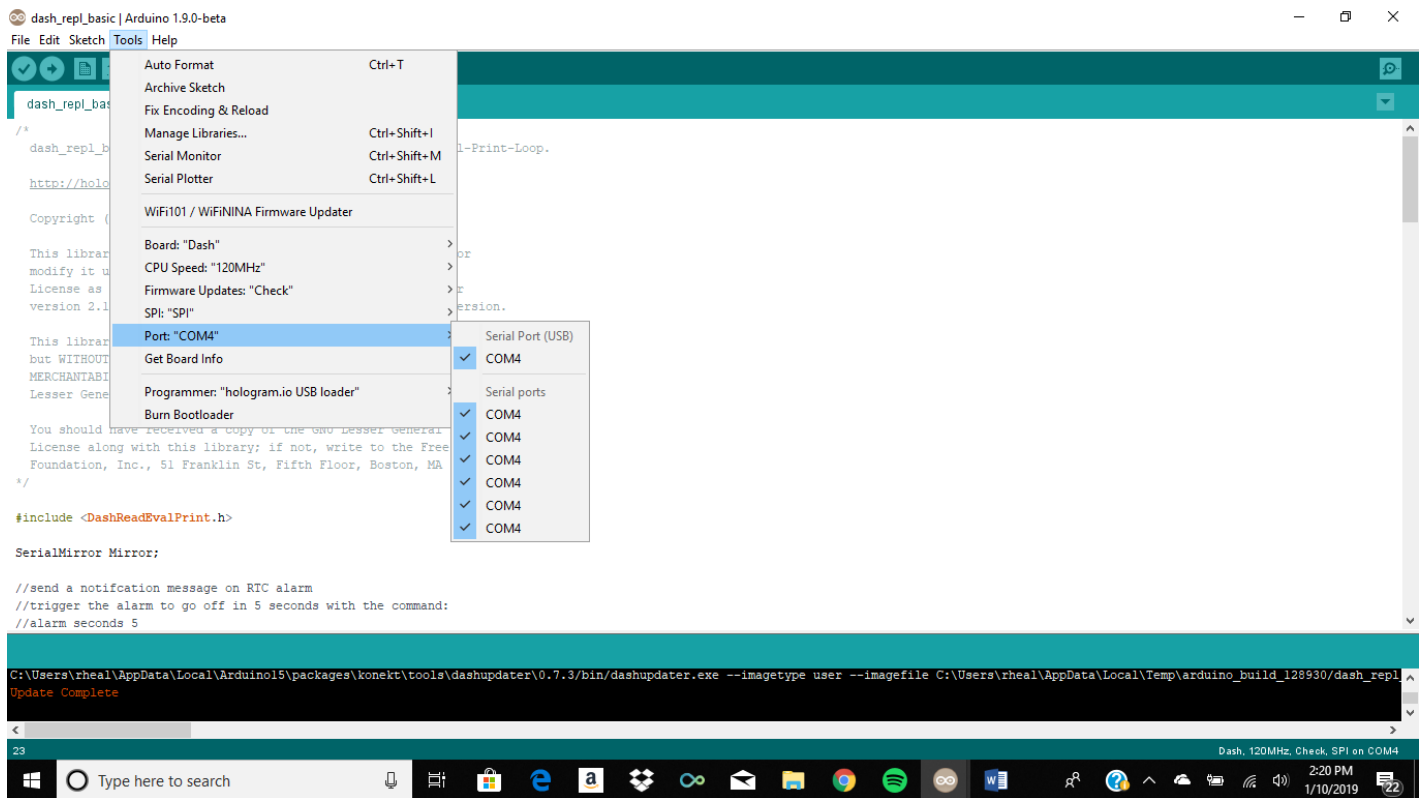
  You should have received a copy of the GNU Lesser General Public
  License along with this library; if not, write to the Free Software
  Foundation, Inc., 51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA
*/
```

If the program successfully uploaded to your device, an orange “Update Complete” message should pop up at the bottom of your screen.



```
Compiling core...
Using previously compiled file: C:\Users\rheal\AppData\Local\Temp\arduino_build_128930\core\variant.cpp.o
Using precompiled core: C:\Users\rheal\AppData\Local\Temp\arduino_cache_25291\core\core_b396760abcc61feac373282f6d070d15.a
Linking everything together...
"C:\Users\rheal\AppData\Local\Arduinol5\packages\arduino\tools\arm-none-eabi-gcc\4.8.3-2014q1/bin/arm-none-eabi-gcc" "-LC:\Users\rheal\AppData\Local\Temp\arduino_build_128930"
"C:\Users\rheal\AppData\Local\Arduinol5\packages\arduino\tools\arm-none-eabi-gcc\4.8.3-2014q1/bin/arm-none-eabi-objcopy" -O binary "C:\Users\rheal\AppData\Local\Temp\arduino_bu
Using library DashReadEvalPrint at version 1.0 in folder: C:\Users\rheal\AppData\Local\Arduinol5\packages\konekt\hardware\sam\0.11.1\libraries\DashReadEvalPrint
Using library ReadEvalPrint at version 1.0 in folder: C:\Users\rheal\AppData\Local\Arduinol5\packages\konekt\hardware\sam\0.11.1\libraries\ReadEvalPrint
"C:\Users\rheal\AppData\Local\Arduinol5\packages\arduino\tools\arm-none-eabi-gcc\4.8.3-2014q1/bin/arm-none-eabi-size" -A "C:\Users\rheal\AppData\Local\Temp\arduino_build_128930
Sketch uses 58340 bytes (8%) of program storage space. Maximum is 719872 bytes.
C:\Users\rheal\AppData\Local\Arduinol5\packages\konekt\tools\dashupdater\0.7.3\bin\dashupdater.exe --imagetype user --imagefile C:\Users\rheal\AppData\Local\Temp\arduino_build_128930\dash_repl
Update Complete
```

At the top toolbar of your screen, click the “Tools” tab, and confirm that the correct PORT is selected by clicking on “Port,” and select the port you are using. The port number should appear in the blue tab on the bottom of your screen, on the far right side.



You are now ready to run serial port commands!

IV. Commands

All commands are executed through the Serial Monitor on the Arduino IDE. Click on the “Tools” tab again and click “Serial Monitor.”



Type “help” into the search bar for a complete list of possible commands.

COM4

help

Send

☒ Autoscroll ☐ Show timestamp

Newline

115200 baud

Clear output

COM4

Send

alarm minutes <minutes> set the alarm <minutes> from now
alarm hours <hours> set the alarm <hours> from now
alarm days <days> set the alarm <days> from now

Battery and Charger

battery percent print the battery percent remaining
battery voltage print the battery voltage in mV
battery status print battery status
charger print if charger is enabled/disabled
charger <enable/disable> enable/disable the charger (if supported)
fuel quickstart quickstart the fuel gauge
fuel restart restart the fuel gauge
fuel sleep put the fuel gauge to sleep
fuel wake wake the fuel gauge from sleep
Dash>

☒ Autoscroll ☐ Show timestamp

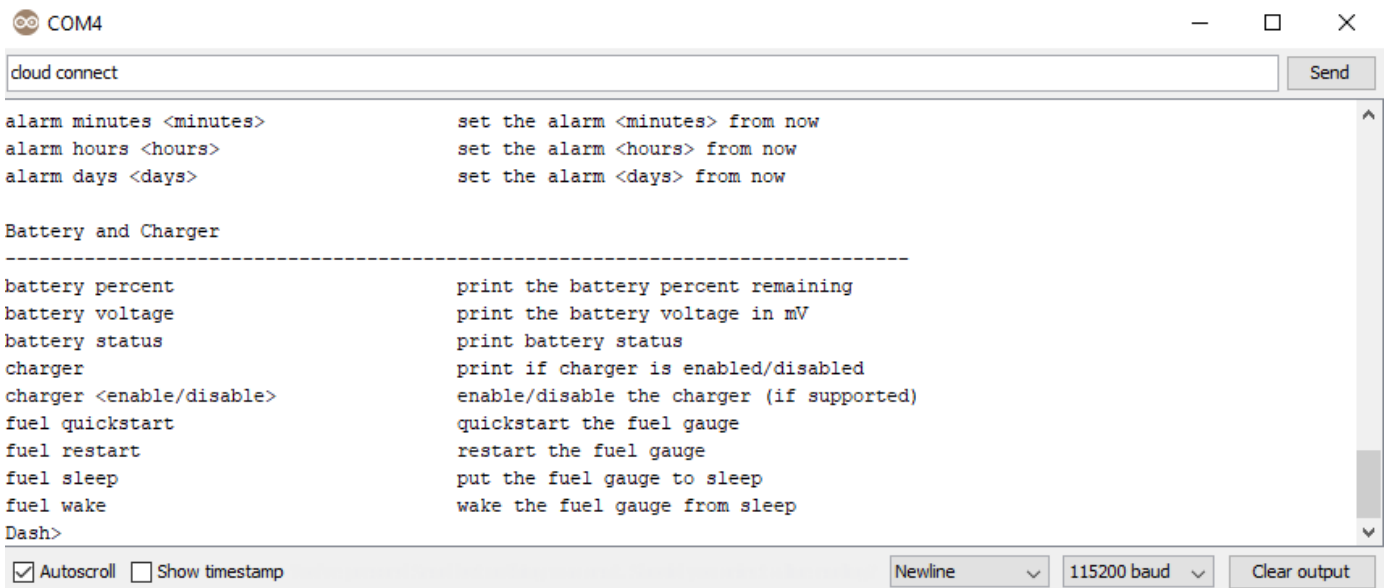
Newline

115200 baud

Clear output

Cloud Connect:

This will connect your device to the cloud, which is the first step in sending messages to/from your device. Type “cloud connect” into the top bar.



COM4

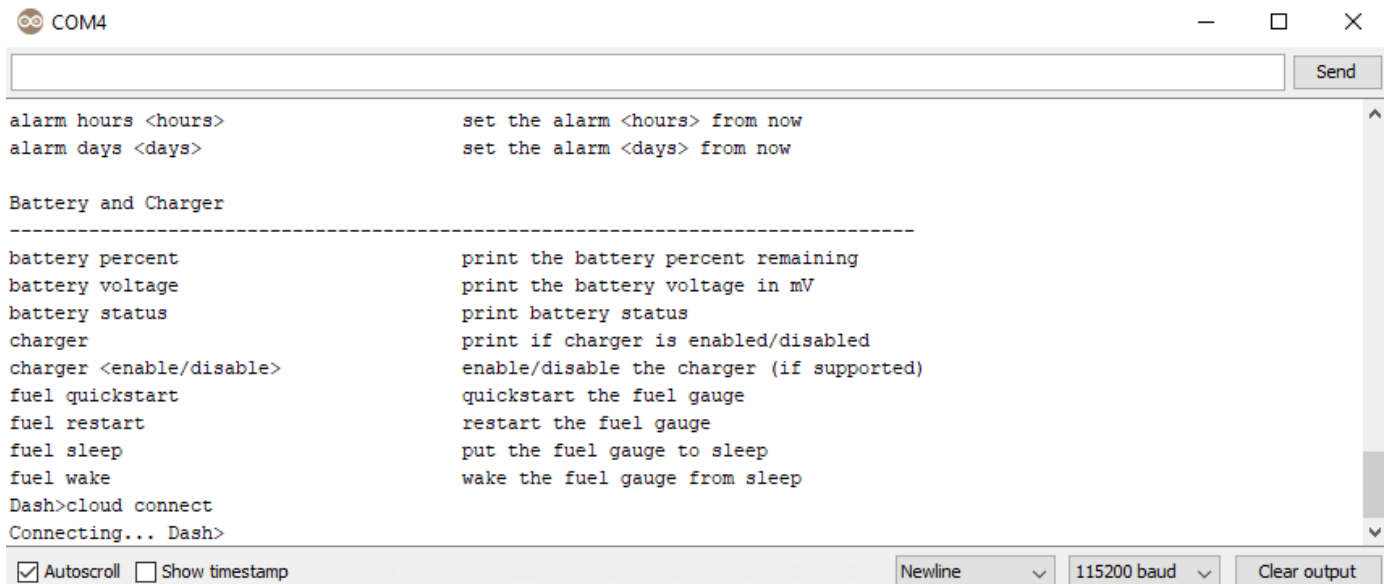
cloud connect Send

```
alarm minutes <minutes>      set the alarm <minutes> from now
alarm hours <hours>           set the alarm <hours> from now
alarm days <days>            set the alarm <days> from now

Battery and Charger
-----
battery percent               print the battery percent remaining
battery voltage               print the battery voltage in mV
battery status                print battery status
charger                       print if charger is enabled/disabled
charger <enable/disable>      enable/disable the charger (if supported)
fuel quickstart               quickstart the fuel gauge
fuel restart                  restart the fuel gauge
fuel sleep                    put the fuel gauge to sleep
fuel wake                     wake the fuel gauge from sleep
Dash>
```

☒ Autoscroll ☐ Show timestamp Newline 115200 baud Clear output

A message will appear in the output window that says “Connecting...”



COM4

Send

```
alarm hours <hours>          set the alarm <hours> from now
alarm days <days>           set the alarm <days> from now

Battery and Charger
-----
battery percent               print the battery percent remaining
battery voltage               print the battery voltage in mV
battery status                print battery status
charger                       print if charger is enabled/disabled
charger <enable/disable>      enable/disable the charger (if supported)
fuel quickstart               quickstart the fuel gauge
fuel restart                  restart the fuel gauge
fuel sleep                    put the fuel gauge to sleep
fuel wake                     wake the fuel gauge from sleep
Dash>cloud connect
Connecting... Dash>
```

☒ Autoscroll ☐ Show timestamp Newline 115200 baud Clear output



The following messages will appear if the IoTa successfully connected to the cloud.

```
-----  
battery percent          print the battery percent remaining  
battery voltage          print the battery voltage in mV  
battery status           print battery status  
charger                  print if charger is enabled/disabled  
charger <enable/disable> enable/disable the charger (if supported)  
fuel quickstart          quickstart the fuel gauge  
fuel restart             restart the fuel gauge  
fuel sleep               put the fuel gauge to sleep  
fuel wake                wake the fuel gauge from sleep  
Dash>cloud status  
No signal. Check antenna.  
Dash>cloud connect  
Connecting... Dash>Registered on Network  
Connected to Cloud  
-----  
  
[Autoscroll] [Show timestamp] [Newline] [115200 baud] [Clear output]
```

LED:

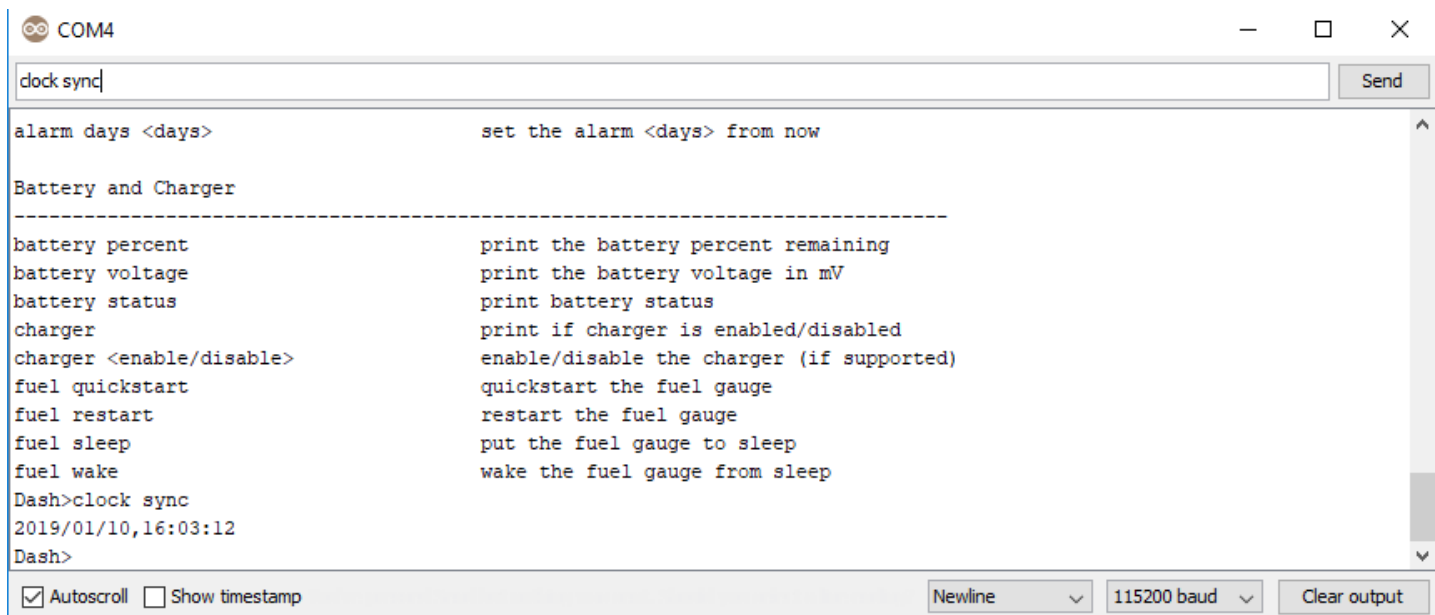
You can turn the LED on and off using the various LED commands.

Typing “led on” or “led off” into the top search bar will power the LED on and off.

```
led on|  
-----  
alarm minutes <minutes>  set the alarm <minutes> from now  
alarm hours <hours>      set the alarm <hours> from now  
alarm days <days>       set the alarm <days> from now  
  
Battery and Charger  
-----  
battery percent          print the battery percent remaining  
battery voltage          print the battery voltage in mV  
battery status           print battery status  
charger                  print if charger is enabled/disabled  
charger <enable/disable> enable/disable the charger (if supported)  
fuel quickstart          quickstart the fuel gauge  
fuel restart             restart the fuel gauge  
fuel sleep               put the fuel gauge to sleep  
fuel wake                wake the fuel gauge from sleep  
-----  
  
[Autoscroll] [Show timestamp] [Newline] [115200 baud] [Clear output]
```

Clock:

Type in “clock sync” to obtain the current time, which is synced with the network time.



```
COM4
clock sync

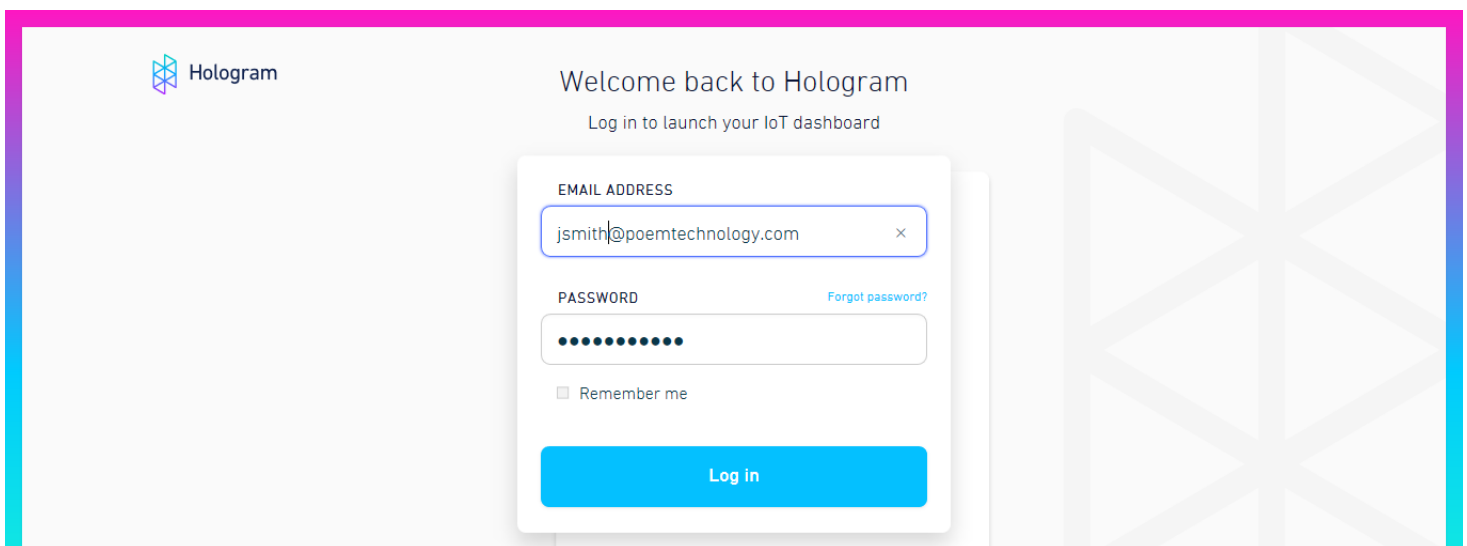
alarm days <days>          set the alarm <days> from now

Battery and Charger
-----
battery percent             print the battery percent remaining
battery voltage             print the battery voltage in mV
battery status              print battery status
charger                     print if charger is enabled/disabled
charger <enable/disable>    enable/disable the charger (if supported)
fuel quickstart             quickstart the fuel gauge
fuel restart                restart the fuel gauge
fuel sleep                  put the fuel gauge to sleep
fuel wake                   wake the fuel gauge from sleep
Dash>clock sync
2019/01/10,16:03:12
Dash>
```

Autoscroll ☒ Show timestamp Newline 115200 baud Clear output

V. Messages

Sending personalized messages to the IoTa is easier than ever using the REPL console. Using the link <https://dashboard.hologram.io>/log into the Hologram site.



Under “Device,” your SIM card name should appear. The status of your SIM card will display under state. “Live” simply means your card is activated.

The screenshot shows a web interface for managing SIM cards. On the left is a sidebar with navigation links: 'R' (top), 'DEVICES', 'ROUTES', 'CONSOLE', 'ACCOUNT', 'STORE', 'DOCS', 'COMMUNITY', and 'SUPPORT'. The main area has tabs for 'All devices', 'Manage', and 'Usage'. Below the 'Manage' tab, there are buttons for 'Select all', 'Manage', 'Tags', and 'Send Message', along with a search bar. A table lists the devices. The first device is 'Pilot (10149)'. The 'STATE' column for this device shows a green dot icon and the word 'Live', which is circled in red. Other columns include 'LAST ACTIVE' (a minute ago), 'USAGE' (9972B), 'PLAN & COVER...' (Pilot Plan - 1MB Global), and 'PHONE #' (-). At the bottom, there is a footer with 'v3.4.0', 'Report an issue', 'All activity', 'Errors', 'Filter', and a close button.

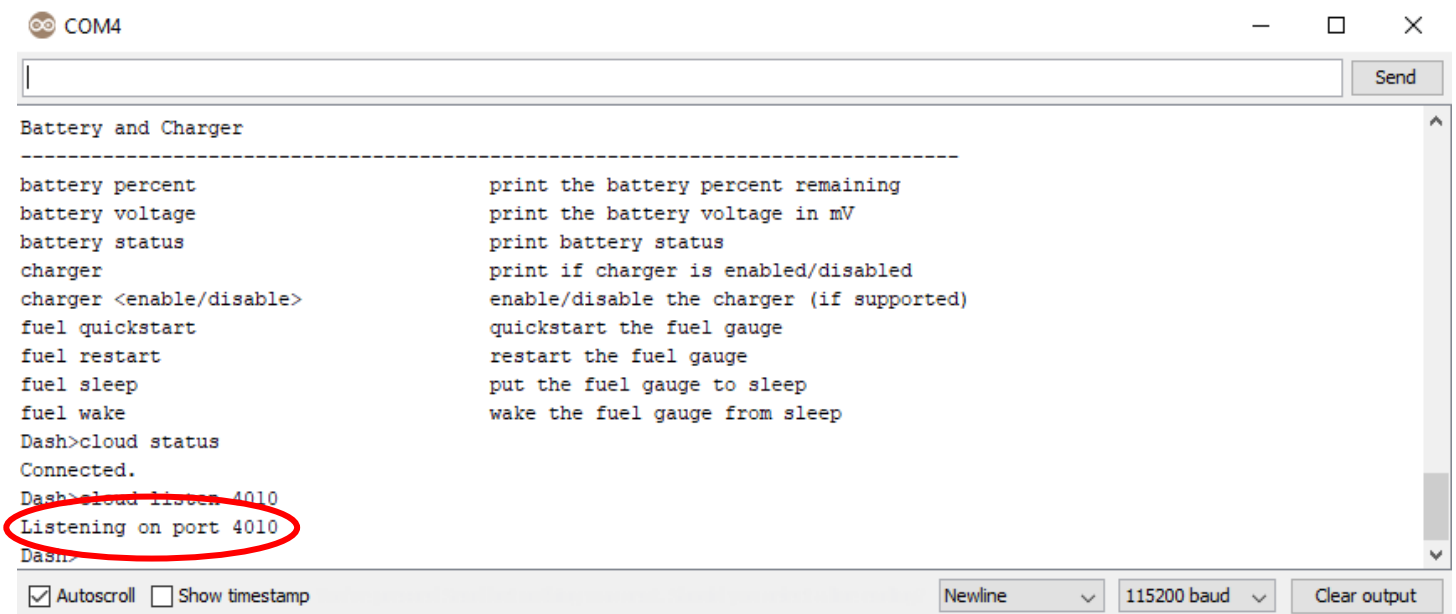
DEVICE	STATE	LAST ACTIVE	USAGE	PLAN & COVER...	PHONE #
Pilot (10149)	Live	a minute ago	9972B	Pilot Plan - 1MB Global	-

A “Connected” message means you are connected to the cloud.

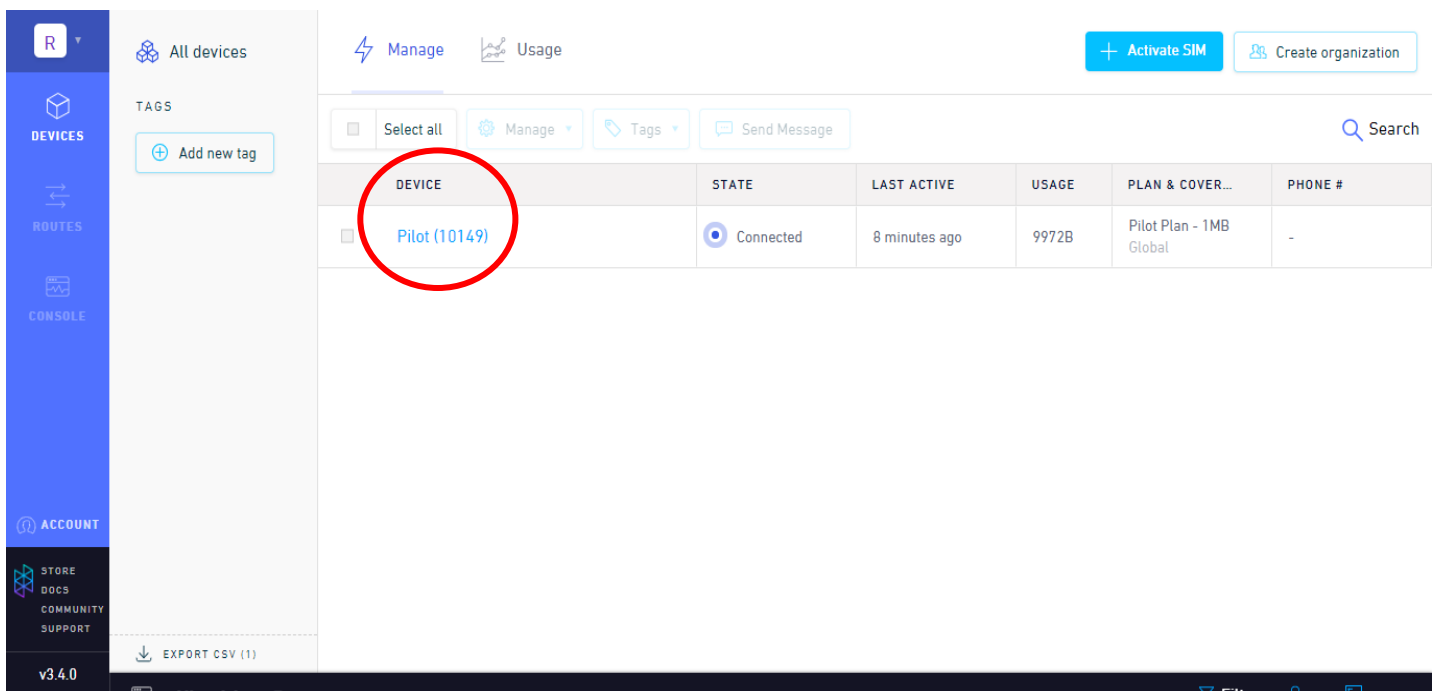
This screenshot is similar to the one above, showing the same web interface. However, the 'STATE' for the device 'Pilot (10149)' now shows a blue dot icon and the word 'Connected', which is circled in red. The other details in the table and the interface layout remain the same.

DEVICE	STATE	LAST ACTIVE	USAGE	PLAN & COVER...	PHONE #
Pilot (10149)	Connected	8 minutes ago	9972B	Pilot Plan - 1MB Global	-

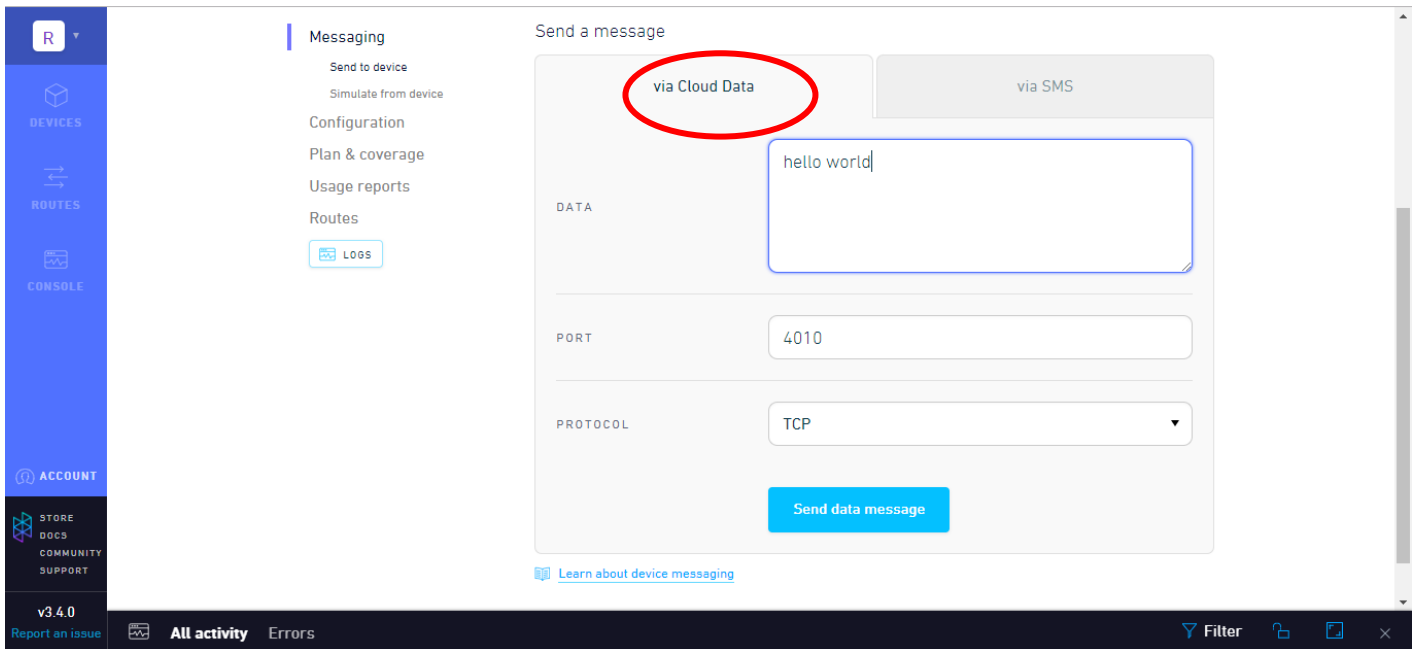
In the serial monitor, type “cloud listen xxxx” where xxxx is the port number. An output message should appear that says “Listening on port xxxx.”



Click on your device name on the Hologram website to send a message.



Using the “via Cloud Data” option will display a message onto the console.
Confirm the port number is the same as the port number you are listening on. Type the message you want into the “Data” box and click the blue “Send data message” box.



Go back to your serial monitor, and your message should be displayed on the console.

