



# JackBord

Opening a world of opportunity

## Setting Up Your JackBord



# Introduction

This guide is for those using the JackBord at home. In it, we will get your JackBord connected to your home Wifi and the Internet.

## School Users

If you're using the JackBord at school and this is the first time you're using it, please also refer to the "Using Your JackBord for the First Time" journey book. It's on the [www.JackBord.org](http://www.JackBord.org) website in the Start Here section.

### Warning!

Your Jackbord is powered by 1 x Lithium ion battery type.

Rechargeable Lithium ion batteries are potentially hazardous and can present a serious **FIRE HAZARD** if damaged, defective or improperly used.

## Specifications

These are the specifications of the JackBord. PLEASE NOTE THAT EXCEEDING ANY OF THESE SPECIFICATIONS MAY RESULT IN DAMAGE TO THE JACKBORD AND MAY REPRESENT A HAZARD.

### USB Charger:

Input voltage: 5V +/-0.2V  
Input current: 2A MAX

### JackBord Power Pins:

These are the 3V & 5V power pins in the JackBord's port. The maximum combined current that the JackBord's power pins can provide is:

5V pins: ~500mA  
3V pins: ~400mA

Motor pins: ~1A

### JackBord I/O Pins:

These are the general purpose input/output pins on ports A, B, C, D and E. They use 3V logic levels. But 5V logic may also be used with them as well.

The maximum limits of the pins are:

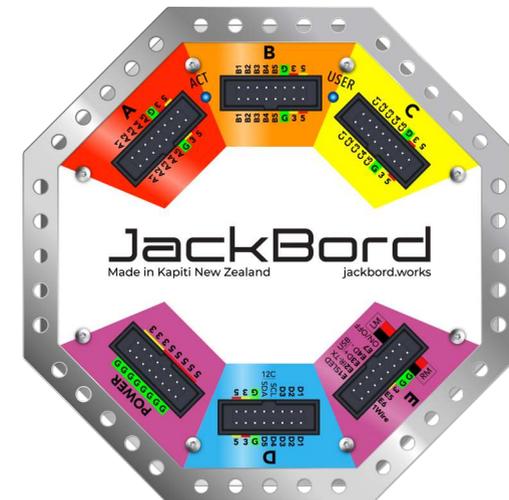
Max input voltage: +5.5V  
Min input voltage: 0V  
Max output current/pin: 5mA  
Max input current/pin: 5mA

### Temperature & Humidity:

Operating temperature: 5C to 40C

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# 1.

## Warning!

**DO NOT LEAVE THE JACKBORD CHARGING UNSUPERVISED!**

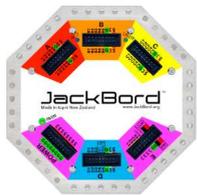
# Unpacking & Charging

In this guide we will check the JackBord's items, get it charged, and then connect it to the Internet so you can access it from the dashboard. Once connected you will learn about the dashboard, your JackBord, and how to do some fun tasks.

## 1.1 Unpacking

### Check the Items

1 x JackBord



1 x USB-C Power Cable



3 x Me-Kits

If your JackBord came with 3 Me-Kits check that they are the ones you selected, and that the contents match.

Any issues email us: [info@jackbord.org](mailto:info@jackbord.org)

## 1.2 Charging

### Charging your JackBord for the First Time

To charge the JackBord's battery, take the supplied charger cable, and plug the **oval end** into the JackBord, as shown.

Next, plug the **rectangular end** of the JackBord charging cable into your USB phone/tablet charger. The USB charger must be capable of providing at least 5V at 2A. It takes around 2 to 4 hours to charge the JackBord.



### Checking the Battery Charge

When you turn the JackBord on, it will flash random colours for a second or so.

After that, the colour will change to indicate the battery percentage as described below. This light will stay on until your JackBord is connected to the WiFi

#### Charge LEDs Battery State

<b>Green</b>	●	more than 95%
<b>Yellow</b>	●	50% - 95%
<b>Orange</b>	●	25% - 50%
<b>Red</b>	●	less than 25%

When the charger is plugged in, the USER LED on top of the Jackbord will flash according to the battery state and colours listed above.

**Once the battery percentage reaches 95% the USER LED will stop flashing, and stay solid green as an indication that you can remove the charger.**

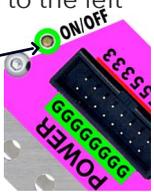
You can also check the battery level from the dashboard. See the **"Using Your JackBord for the First Time"** journey book.

### Turning the JackBord On/Off

Turn the JackBord on and off using the power button just above and to the left of the POWER port.

Press **ONCE** to turn the JackBord **ON**

Press **ONCE** to turn the JackBord **OFF**



Your JackBord was previously put in a special "Storage Mode" for shipping purposes. **In Storage Mode, the only way a JackBord can be turned back on, is if a charger is connected.**

Should you ever need to utilise Storage Mode, press and hold the power button for 20 seconds.

### Looking After the Battery

To get the best out of the JackBord's lithium ion battery:

**1.** Try not to completely flatten the battery. It's best to try and charge it before it gets below 25%.

**2.** Never try to charge the battery using anything other than a 5V 2A USB phone/tablet charger.

### Next Step

Once the JackBord is charged we need to get it connected to the Internet via your Wifi access point. We will do this in the next section.

### Charging Notes:

Charge the JackBord in a well ventilated area. Avoid direct sunlight or temperatures >40C.

Try not to have too many high current drain devices attached to the JackBord during charging.

If you think the battery or JackBord is damaged in some way, **DO NOT ATTEMPT TO CHARGE THE BATTERY. CONTACT US FOR HELP INSTEAD.**

[www.JackBord.org](http://www.JackBord.org)

# 2.

## Connecting Your JackBord to the Internet

To get the most out of your JackBord it needs an Internet connection. In this section we're going to get the JackBord connected to the Internet via your Wi-Fi access point.

### 2.1 Before You Begin

Before starting here's some background information. When you first turn on your new JackBord, it will start in Treehouse mode (see the definitions to the right). The SSID will be your JackBord's Factory ID. In this mode the JackBord is self-contained and you connect directly to its Wifi hotspot using your phone, tablet or PC.

Once connected you will need to enter the details of your wireless access point into the JackBord so it can connect to the Internet. Then you will be able to use it via the dashboard at [jb.jackbord.org](http://jb.jackbord.org). Follow the instructions in section 2.2 to get the JackBord connected to the Internet now!

#### Warning! 5G Wifi

The JackBord cannot connect to 5G Wifi access points. It requires a 2.4G access point. Also note IPV6 is also not supported.

#### Terms You Should Know

##### Factory ID:

Printed on the side panel below port B and is unique. The default Treehouse mode SSID will be the factory ID.

**The factory ID is case sensitive!**



##### JackBord ID:

This is the ID you choose for the personality you create on the dashboard. This is two words separated by a dot. E.g. cat.dog or mr.blamo. The ID of the personality becomes the JackBord's ID after it's adopted. Max allowed name length is 32 characters.

##### Wireless Access Point:

This is the Wifi access point you normally use to access the Internet. The JackBord will connect to the Internet through it.

##### Treehouse mode

In this mode the JackBord is standalone. It is not connected to the Internet, instead you connect directly to it via the built in Wifi hot-spot. By default the Treehouse mode SSID will be the factory ID. But once you have completed this section, the Treehouse mode SSID will be your JackBord ID.

**ACT light:** Flashes green in this mode.

##### World mode

In this mode the JackBord is connected to the Internet via a Wifi Access point. You interact with it via the dashboard located at [jb.jackbord.org](http://jb.jackbord.org), more about this later.

**ACT light:** Flashes blue or white in this mode.

#### Personalities and Adoption

A personality is a profile you create on the dashboard that may then be used to adopt any JackBord. It is what contains your programs and settings.

Once you create a personality, it can then adopt a JackBord. Once adopted the programs and settings from the personality are transferred to the JackBord. That way you can use your programs on any JackBord.

#### The Connection Process

When you turn a factory new JackBord on, it will start-up in Treehouse mode. Now look for the JackBord's Wifi SSID on your device (this will be the factory ID on the back of the JackBord).

Next, connect to the JackBord's Wifi hotspot and enter the details of your Wifi access point. The JackBord will reboot and connect to the Internet using the Wifi details you've provided. From then on you will use the web based dashboard to interact with the JackBord. So lets get started.

#### What You Will Need

You will need the following items before you start:

- Your charged JackBord
- The Factory ID
- Your wireless access point details
- An internet connection
- A device with a web browser

#### Note:

Device refers to the device you will use to connect to the JackBord to do the setup. It can be a smart phone, tablet, or PC. Recommended web browsers are Firefox or Chrome, as they have proven to work the best.

## 2.2 Connecting

First, we are going to connect to the JackBord in Treehouse mode and enter the details of your Wifi access point. For this section we will use the following information (yours will be different):

### JackBord Details:

Factory ID: 1004

### Wifi Access Point Details:

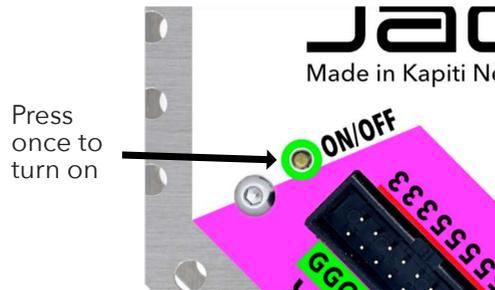
Wifi SSID: Tree  
Wifi Password: trees-are-cool

### Connection Steps

Follow these steps to connect to your JackBord. If the JackBord is brand new or cannot connect to a valid Wifi access point, it will start in Treehouse mode automatically. The ACT Light will flash green to show it is in Treehouse mode.

#### 1. Turn on the JackBord

Press the power button once and wait for the JackBord to turn on.

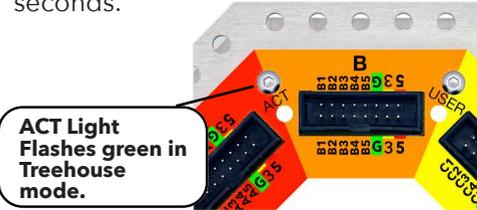


If this is the first time your JackBord has been turned on, it may take a little longer to start up. Please be patient.

When turned on, the lights inside the JackBord will light up, you can see them by looking in from the side.

#### 2. Confirm it's in Treehouse Mode

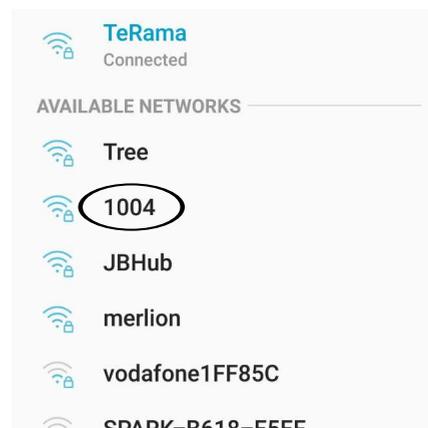
When in Treehouse Mode, the ACT light will flash **green** once every few seconds.



If in World mode, the ACT light will flash blue or white. In this case you will need to put your JackBord into Treehouse mode manually. See section 2.5 Entering Treehouse Mode.

#### 3. Connect to the JackBord

The JackBord is now acting as a Wifi hot-spot which means you can connect to it with your device. For our example, when we look at the list of available Wifi access points on our device (a smart phone in this case) we see a new one called 1004, this is the JackBord's SSID.

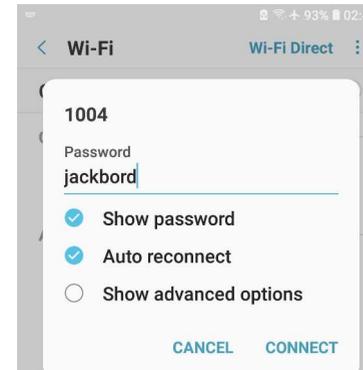


#### 4. Select Your JackBord and Enter the Wifi Password

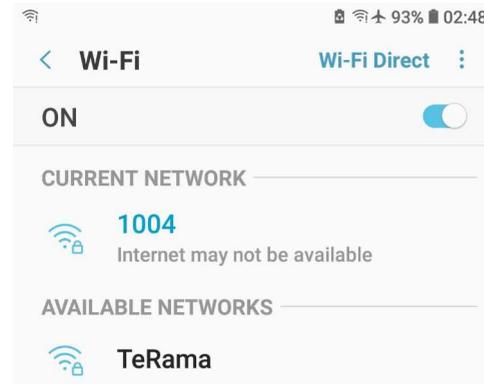
Your JackBord's SSID will be different to the example. Once you find it on the list of available access points, click on it and enter the JackBord's default Treehouse mode Wifi password:

jackbord

This is all lower case and one word.



Click connect, and you should be connected to your JackBord as shown below.



#### Tip: No Internet Warning

Do not worry if you get a warning saying the Internet may not be available, this is normal.

#### 5. Use Your Web Browser to View the JackBord's Treehouse Home Page

For this step we use your device's web browser to visit the JackBord's web page. Open your devices web browser and type:

<http://192.168.4.1>

in the address bar, which is usually at the top. An example is shown below.



#### Tip: Google Search Prompt

Be careful not to enter the IP address (<http://192.168.4.1>) into the Google search prompt by mistake. If you do you will get an error and it won't work. If this happens look for the address bar and try again.

#### 6. Entering Your Access Point Details

When the Wifi setup screen (shown below) appears, enter your access point's **SSID** and **password** at the respective prompts.



In our example the SSID is **Tree** and the password is **trees-are-cool**. Your access point will be different.

Type the SSID and password for your access point in the respective prompts and click the **Save** button to save your changes. If there are any issues, a message will be displayed at the bottom of the page.

### 7. Reboot JackBord into World Mode

If your Wifi details have been accepted the page will return and you should reboot the JackBord by clicking the **Reboot into World Mode** button.

📶 93% 02:50

🏠 192.168.4.1

### Tip: Wifi Access Point

You need to provide the SSID and password of your Wifi access point. This is the one you use to connect to the Internet, not those of the JackBord.

## 8. Confirm the JackBord's Connected to the Internet

If the JackBord successfully connects to the Internet the ACT light will begin flashing blue or white. If so, you are ready to move on to section 3. If the ACT light is still flashing green, this means the JackBord failed to connect to your Wifi access point. Repeat the above process and try again.

### Having Problems?

If you are still having problems see the Wifi Troubleshooting guide in section 2.3.

### ACT Light Meanings

The ACT light meanings are listed in the table below.

Flash	Meaning
White	Connected to the internet, <b>not adopted</b>
Blue	Connected to the internet, <b>adopted</b>
Yellow	Wifi ok, no Internet connection
Green	Treehouse mode
Red	There is a fault with the JackBord
<b>2nd Colours:</b> These colours may appear after the ones above.	
Navy blue	Weak Wifi < -90dB
Purple	Lost Wifi connection trying to re-connect
Orange	Remaining battery capacity is <= 10%

### Adoption Colour Challenges

During an adoption colour challenge the ACT light will show the same colours as the USER LED as these are the colours for the adoption challenge.

## 2.3 Troubleshooting

If you are having issues connecting your JackBord, this section may be helpful to you.

### 1. Connected but says no Internet

You can ignore this, but if asked if you want to connect despite there being no Internet, say **Yes**.

### 2. Wrong password

The default Treehouse mode password is **jackbord**.

### 3. I can't see my JackBord's SSID

Try turning the JackBord off and then on again. Check the ACT light flashes green or purple every few seconds. If not, see the **Manually Entering Treehouse Mode** guide in section 2.5.

### 4. Checking My Wifi Signal Strength

There is a simple way to check the Wifi signal strength the JackBord sees when using your Wifi access point. From the command line type the command **vn** and press Enter.

The status of the network connection will be shown as below:

```
***** World Mode Network Status *****
IP: 192.168.4.16
AP SSID: Tree
Signal: -51 dBm
JB IP: 192.168.4.16
```

Wifi Signal Guide:  
-30 Amazing -67 Very Good -70 OK -80 Not Good -90 Unusable

The Wifi signal strength, shown in **bold**, shows the strength of the Wifi signal the JackBord has to work with. Ideally the signal should be in the green range, better than -70. Anything less than this and the JackBord may struggle. In the example above the

Wifi access point SSID is Tree and the signal strength is currently -51 dBm, which is pretty good.

### 5. The JackBord keeps going into treehouse mode

If you find your JackBord randomly going into Treehouse mode, this may be a sign of a poor Wifi signal. To deal with this you need to find the JackBord a place where it can better connect to the Wifi. Use the **vn** command to view the Wifi signal strength at the JackBord and see where it's best. You may need to move your Wifi access point or JackBord if the signal is too weak.

### What Happens if the JackBord Can't Connect to My Wifi Access Point or the Internet?

If the JackBord is unable connect to your Wifi access point or gain access to the Internet, it will automatically reboot into Treehouse mode. This is to give you the opportunity to update the WiFi access point settings in the JackBord so it can try again with the new settings.

When the JackBord is in treehouse mode the **ACT** light will flash green or purple instead of blue or white. It will remain in Treehouse mode for about 60 seconds before restarting again, so try connecting to the Wi-Fi access point another time.

If you have this problem, check to see if the Wifi access point is turned on and in range. If you need to update the Wifi access point settings in your JackBord see section 2.4.

## 2.4 Updating Your JackBord's WiFi Access Point Settings

At some point in the future, you will probably need to update the Wifi access point settings in your JackBord. The most common reasons for this are:

1. The Wi-Fi access point stops working or is unavailable for some other reason, in which case see section 2.2.
2. Your JackBord currently has Internet access, but you know your Wifi access point details are going to change and the Wifi access point settings in the JackBord need to be updated. In this case, follow the instructions below.

### Updating the JackBord's Wifi Access Point Settings in World Mode

If your Wifi access point settings are going to change, you need to update the settings in the JackBord so it can continue to operate using the new settings.

**Note:** This section assumes you are connected to your dashboard and the JackBord is connected to the Internet.

To change the Wifi access point settings on the JackBord we need to get it into Treehouse mode. This can be done from the command page on your dashboard.

If you don't know what the dashboard is yet, you can manually put the JackBord into Treehouse mode by following the instructions in section 2.5.

### Using the `jbtree` Command

From the command page type the `jbtree` command at the prompt and press **Enter**. This causes the JackBord to reboot into Treehouse mode and remain there. Once you are in Treehouse mode, go ahead and update the JackBord's Wifi Access point settings by following the instructions in section 2.2.

### Treehouse Mode

If the JackBord can't connect to the Internet via Wifi, it will reboot into Treehouse mode. Then you will see a Wifi access point with your JackBord's ID. This mode lets you use the JackBord without the Internet.

You can tell when Treehouse mode is active, by watching the ACT light. In Treehouse mode, it will flash green or purple depending on whether the JackBord has been adopted or not.

### World Mode

World mode refers to when the JackBord is connected to the Internet, and has contact with the outside World. This is the opposite of Treehouse mode, in which the JackBord is its own Wifi hotspot and runs its own mini website.

You can tell when World mode is active by watching the ACT light. In World mode it will flash blue or white depending on whether the JackBord has been adopted or not.

## Accessing the Wifi Access Point Settings From the Treehouse Home Page

By default if there are no existing Wifi access point settings, you will be taken directly to the Wifi settings page when you enter Treehouse mode. But if they have already been set you will be sent to the Treehouse mode home page instead. Follow these instructions to navigate to the Wifi settings.

### 1. Put the JackBord into Treehouse mode

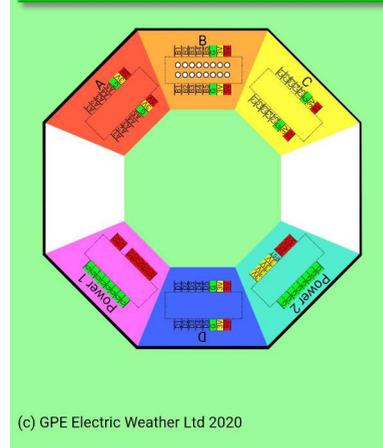
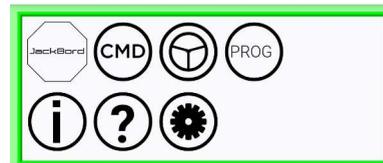
To do this follow the instructions in section 2.5.

### 2. Connect to the JackBord

Using the instructions from section 2.2, connect to the JackBord's Wifi hot spot and navigate to the Treehouse mode home page as shown below:

192.168.4.1

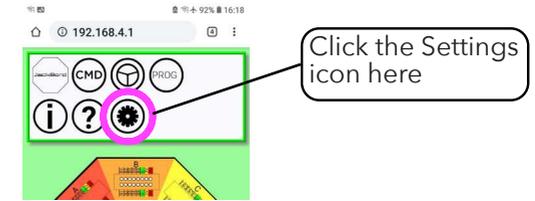
192.168.4.1



(c) GPE Electric Weather Ltd 2020

## 3. Opening the Configuration Page

Click on the settings button as shown below to get to the Wifi settings page.



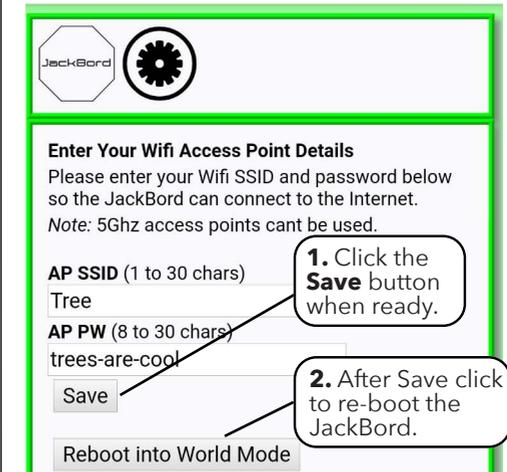
This will bring you to the General Setup page. Once there click on the "Enter Your Wifi Access Point Details" link.



## 4. Update Your Access Point Details

When the Wifi setup screen, shown below, appears, enter your access point's **SSID** and **password** at the respective prompts. Then click on Save. Finally, reboot the JackBord by clicking the **Reboot into World Mode** button.

192.168.4.1



## 2.5 Using Treehouse Mode

There are a few ways in which the JackBord can be manually put into Treehouse mode. This section covers the most common ones and how to return to World mode.

### 2.51 Entering Treehouse Mode From the Command Page

This method assumes that the JackBord is connected to the Internet and that you are logged into your dashboard account and know how to use the command page.

If your JackBord does not have an Internet connection or you don't have access to the command page, move onto section 2.52, to do it using a button.

If you have access to the command page on the dashboard and the JackBord is online, you can put it into Treehouse mode using the `jbtree` command.

#### 1. Open the Command Page

Type the `jbtree` command at the prompt and press Enter.

#### 2. The JackBord will Reboot

After entering this command, the JackBord will reboot and come up in Treehouse mode and remain there until it is turned off and on again.

### 2.52 Entering Treehouse Mode Using the Power Button

To put the JackBord into Treehouse mode follow these steps:

1. Turn on the JackBord.

2. Once turned on press and hold the power button until the ACT LED goes green, this should take about 6 seconds. When the ACT LED goes green, release the power button. The JackBord will reboot into Treehouse mode.

### Confirming the JackBord is in Treehouse Mode

When in Treehouse mode, the JackBord's ACT light, shown on the left of Port B below, will flash green or purple.

ACT light  
Flashes green in  
Treehouse mode.



### Treehouse Wifi Hotspot SSID

You should also see a new Wifi access point whose SSID is either the JackBord's factory ID or its JackBord ID.

### 2.53 Leaving Treehouse Mode

To get your JackBord out of Treehouse mode, you can:

1. Press and hold the power button for around 15 seconds, the ACT LED will flash blue. Release the power button to reboot into World mode.

2. Open the config page and click on the **Reboot into World Mode** button, as shown on the right.



3. On the Treehouse mode command page type the `jbwor1d` command and press Enter.

## 2.6 Updating Your JackBord's Firmware

From time to time we will update the software for your JackBord. This software is called firmware. When an update is available, you will see a parachute icon appear on your JackBord's dashboard entry as shown below.

To update your JackBord, click on the parachute icon and the update will begin. Before you do an update, make sure your JackBord has plenty of battery charge left and that the Internet connection is stable.



Once the update is complete, the JackBord will reboot and run the new firmware.

### Warning!

**DO NOT POWER OFF OR RESET THE JACKBORD WHILE IT IS UPDATING!**

Doing so may cause it to become unusable and you will have to send it to us for repairs.

### Update from Command Page

You can also update your JackBord by running the `upjtb` command from the command page. But updating from the dashboard is the preferred method.



## ALL DONE?

Once you finish setting up, you can check out the "Using Your JackBord for the First Time" Guide, which you can find on [jackbord.org](https://jackbord.org) under the "Setting Up" tab.

In it, you will learn all about the JackBord and it's components, along with how to use the DashBoard!