aws

AWS DeepRacer

Getting Started Guide

Getting Started Guide

Contents

What's in the box

Check to make sure you have all the parts pictured

1. **Car chassis** (with compute and camera modules)

2. **Car body**

3. **Car battery**

4. **Car battery charger**

5. **Car battery power adapter**

6. **Compute module power bank**

7. **Power bank's connector cable**

8. **Power adapter** and **power cord for compute module and power bank**

9. **4 pins** (car chassis pins)

10. **12 pins** (spare parts)

11. **USB-A to micro USB cable**

Gather additional items

You'll need some additional items, not included with your AWS Deep Racer, to get started:

- Computer or Laptop with USB port and access to the internet

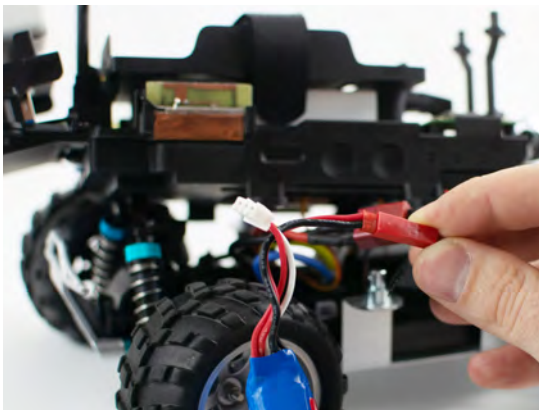- USB flash drive

- Wi-Fi network

- AWS Account

Assemble your car
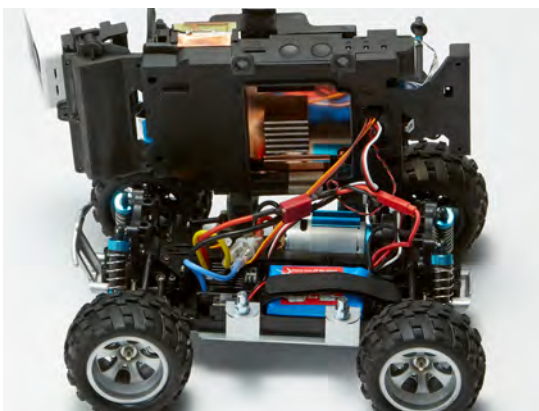
Unpin the car chassis

Remove the pins and gently lift the car chassis in order to install the car battery.

 – Remove all four pins
 – Lift car chassis. Careful! There are connected wires under the chassis.

Connect car's battery cable

Connect the car battery's cables, aligning the cable colors, red with red and black with black.

Secure the car battery

Use the straps to secure the car battery under the car chassis. Keep all the cables inside the car

Pin the car chassis

Use the pins to re-secure the car chassis. Push pins as deep as shown

Assemble your car

Install Power bank

Insert the power bank with the ON button and USB ports facing the back of the vehicle.

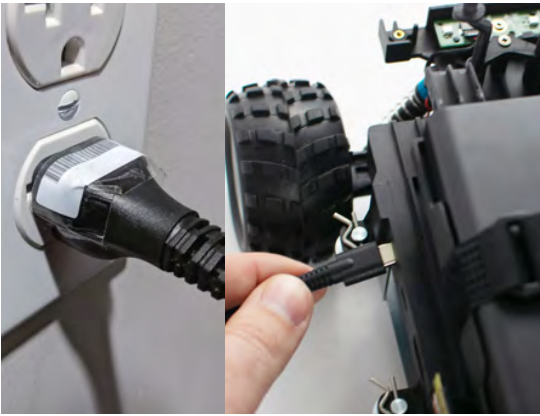Make sure USB ports are as shown, nearest the chassis USB port and the power at the rear of the car.

Secure Power bank

Use the straps to tightly secure the power bank to the car chassis.
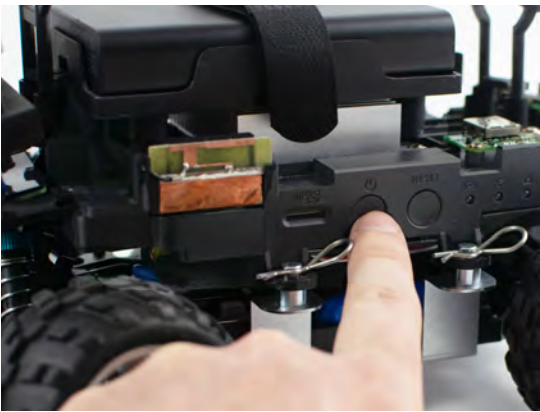
DO NOT CONNECT THE POWER BANK TO THE CAR.

Get connected

Connect to wall power

First, lets connect your car to power. Plug in the end of the power cord into wall power and the other end to the USB-C power port on the car.

▭▬▬ Look for this icon above the input

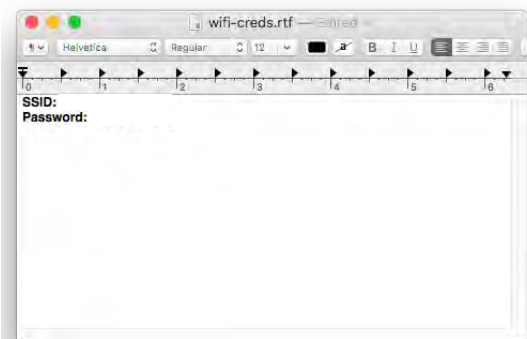
Turn on your car's computer

Find the compute power button and press it to turn it on. The left blue LED should turn solid blue.

⏻ Look for this icon above the button

Look for the blue light

The power indicator LED will start red and shift to blue. The blue LED is a successful power on.
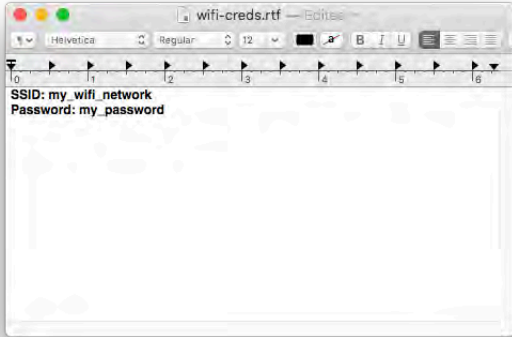

Download Wi-Fi credentials file

Press the download button to get the wifi-creds.txt file. Then save the file as wifi-creds.txt.

Download wifi-creds.txt ⭳

The **wifi-creds.txt** file allows you to enter Wi-Fi credentials to connect the car to a Wi-Fi network and display an IP address. The IP address allows you to interact with the car wirelessly.
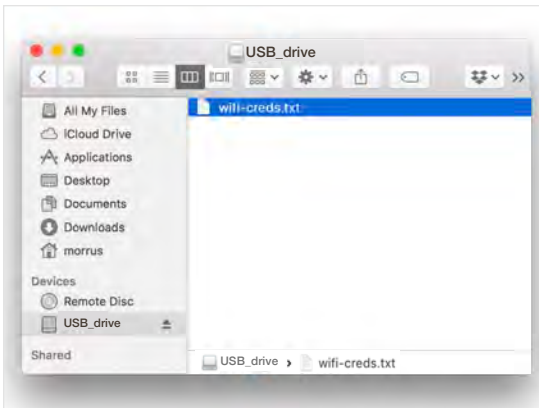
Get connected

Edit Wi-Fi credentials file

Open the file you just downloaded wifi-creds.txt using a code editor such as Sublime Text, enter your Wi-Fi network's name or SSID and password

WARNING: During the initial setup, please make sure the Wi-Fi has an internet connection, so the device can update to the latest software. If not, it will impact software update and the subsequent Wi-Fi connections.

Save Wi-Fi credentials file to USB flash drive

Save the **wifi-creds.txt** file to the USB flash drive root folder. Eject the USB flash drive from your computer.

Connect USB flash drive to your car

Now that you have a USB flash drive ready with your Wi-Fi network credentials, you need to connect it to your car. The car reads the wifi-cred.txt file and connects to the Wi-Fi network.

– Plug USB flash drive into your car, as pictured
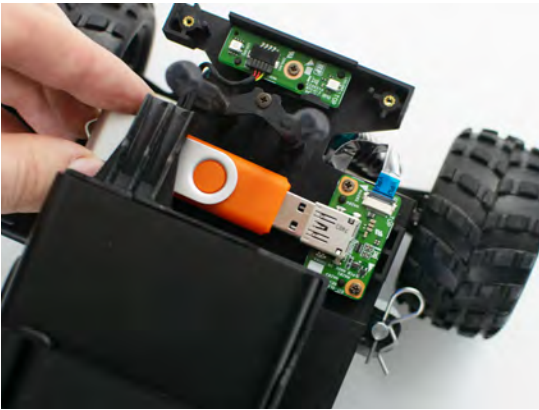– Look at car's Wi-Fi LED light

Confirm connection

The car's LED light should be blinking, when the second LED turns a solid blue you have successfully connected your car to Wi-Fi.

If you see a red LED, disconnect the USB flash drive from the car. Connect the USB flash drive to your laptop or computer and validate if you entered the SSID and password correctly.
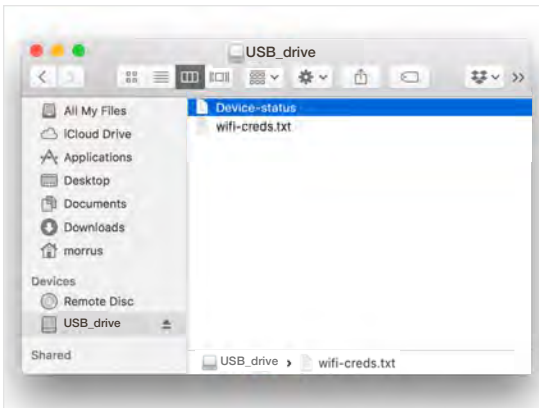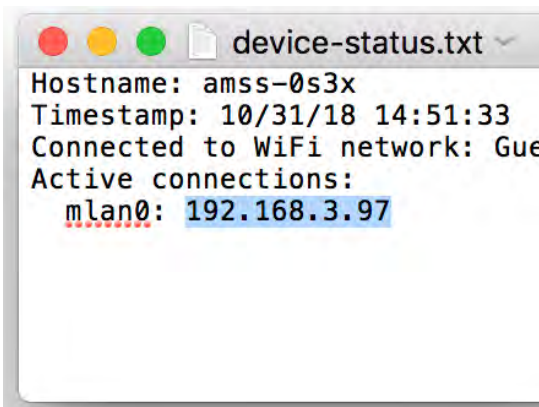
Get connected

Disconnect USB flash drive

Unplug the USB flash drive after the car's Wi-Fi LED light has turned solid blue.

Reconnect USB flash drive and locate file

Connect your USB flash drive to your computer or laptop. Open USB flash drive and locate **device-status.txt** file. Open the file.
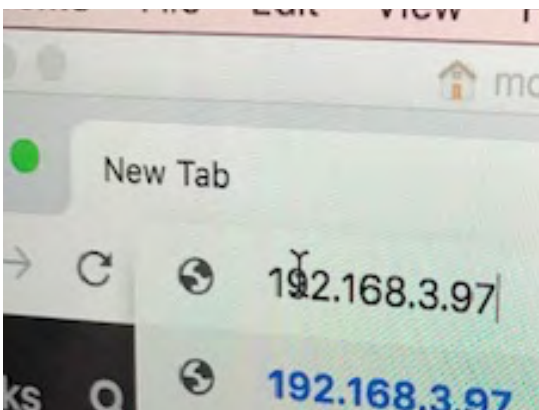
Get IP address

IP address is how you connect to your car via your mobile device or computer to manually drive your car and manage settings.

– Open device-status.txt
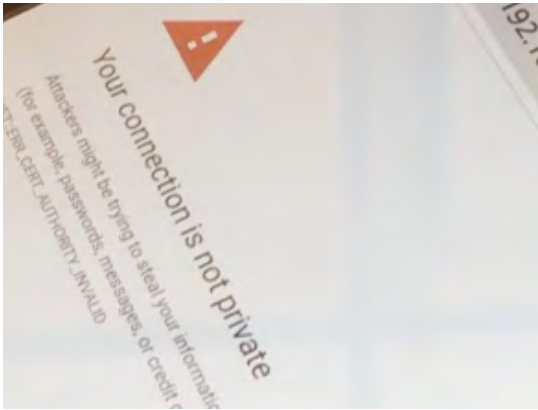– Find the IP address
– Copy IP address

Copy the IP address to your web browser

Use your mobile device, laptop or computer with a browser to manually drive your car and manage settings. Copy the IP address from **device-status.txt** and paste it in your web browser.

Troubleshooting: Your computer, laptop or phone needs to be connected to the same network you entered in wifi-cred.txt file

Get connected

Accept and proceed

Web browsers inform you your connection is not private and you need to view advanced options to accept and proceed.

Update your car's software

Your car may require a software update.

– Car must be connected to wall power
– Click update software

Software update complete

Once the update is complete, disconnect from wall power. Follow a few more steps to test drive your car.

– LEDs will blink while updates occur
– Software is complete when you see blue LEDs

Test drive

Connect the Power bank

Use the **Power bank connector cable** to connect the power bank to the left USB-C port.

Turn on power bank

Press the ON button to turn on the **Power bank**. The LED lights on the back of the Power bank should turn on. When all four LEDs are on the battery is fully charged.

Turn on your car's computer

Find the **Compute power button** and press it to turn it on. The left blue LED should turn solid blue.

⏻ Look for this icon above the button
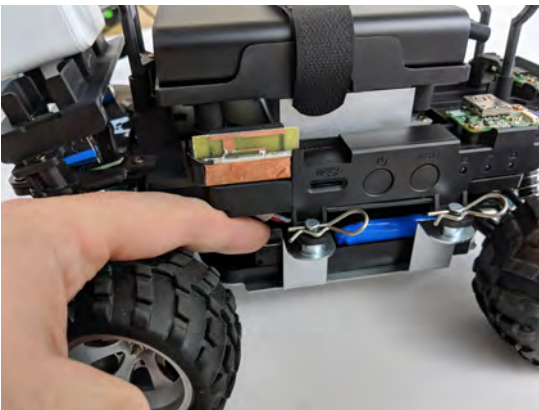
Wait for your car to connect to your Wi-Fi network

The car turns on and begins to connect to a Wi-Fi network. Wait until both LEDs turn a solid blue. When the second LED turns a solid blue your car has successfully connected your car to a Wi-Fi network.
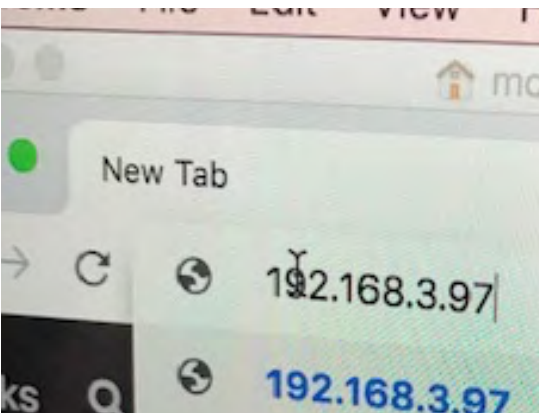
Test drive

Align wheels

Center the wheels so they they are facing foward.

Turn on the car

The car on/off switch is located behind the front tire, below the car chassis. Slide the power switch to the right to turn it on. Listen for two short beeps, then one long beep sound. Your car is ready when you hear the long beep.

Use your computer or phone

To test drive, you can use any device that has access to a web browser and connected to the same wifi you entered in your wifi.txt

- – Open browser
- – Enter IP on URL bar and go

Sign in

Drive your car both manually and autonomously, manage settings and adjust the callibration by signing in. Access your car by entering the password printed on the bottom of your car.
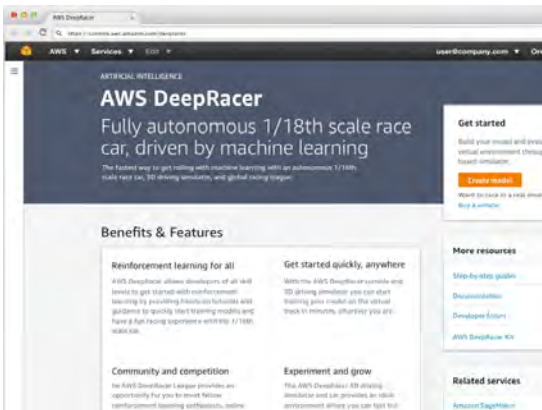
Test drive

Manually test drive your car

Great, you're all set to drive your car. The image on the screen is from the car's camera.

- Driving mode needs to be manual
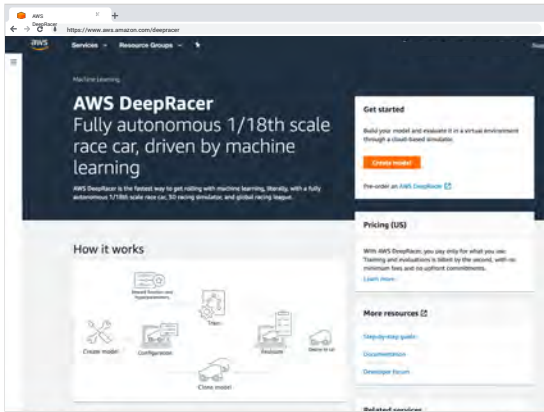- Move your finger around the touch pad to drive the car.

Autonomous driving

Upload models you created and trained to your vehicle. Watch your vehicle drive autonomously.
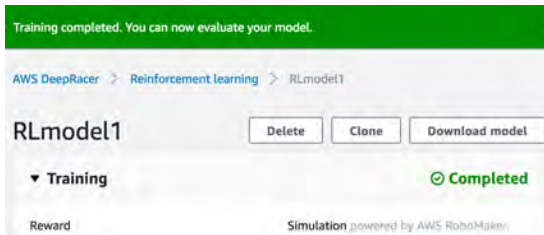
Go to **https://aws.amazon.com/deepracer**

Autonomous model management

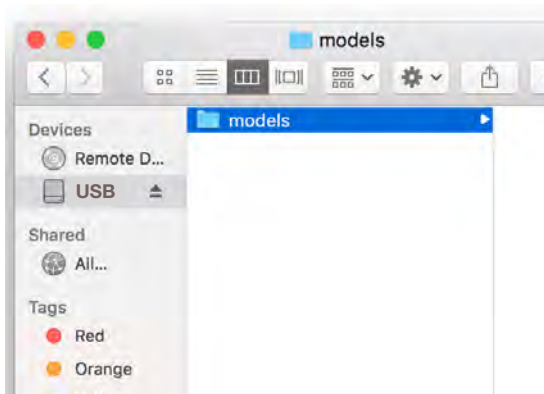## Create a model

Go to **https://aws.amazon.com/deepracer** to create, train and evaluate your own reinforcement learning model.

– Login using your AWS account
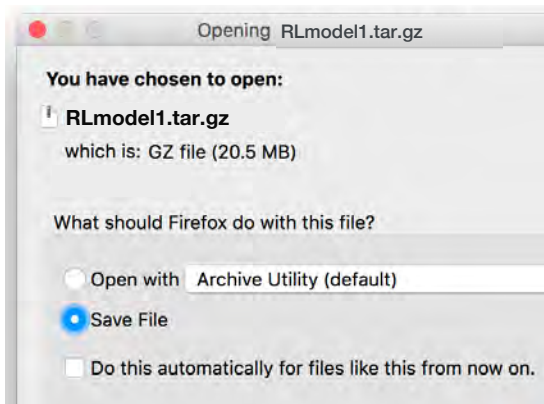– Click Create model to begin

Download your model

Once your model completes training, you can download your model to your computer.

Create a folder on USB flash drive

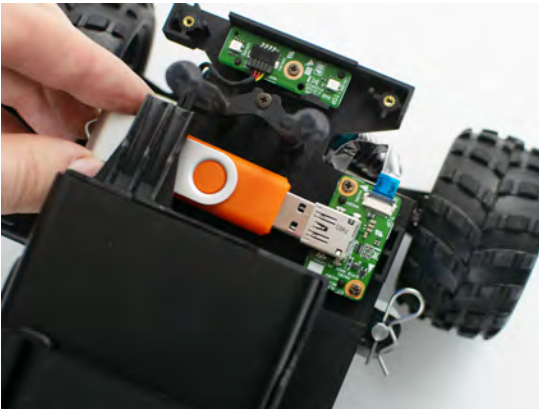Connect USB flash drive to your computer and create a new folder called **models**.

– Connect USB flash drive to your computer
– Open USB flash drive
– Create **models** folder

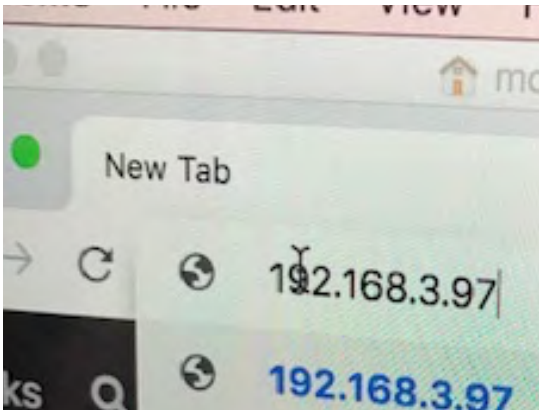## Save downloaded model to models folder

The downloaded file will reference the name of your model with the extension .tar.gz, e.g. model1.tar.gz. Find it in downloads and place in **models** folder on USB flash drive.

Autonomous model management

Connect USB flash drive to your car

Eject USB flash drive from your laptop and connect the USB flash drive to your car.
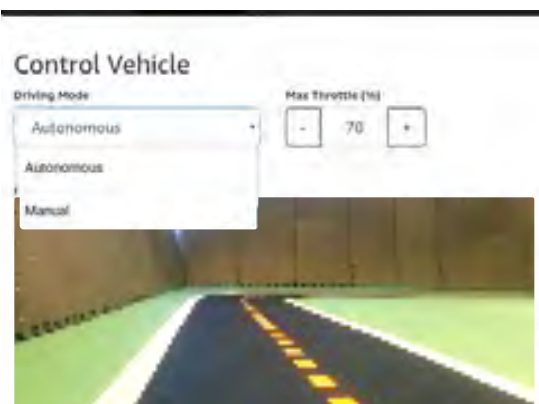

Use your computer or phone

Open the browser and enter your car's IP address on the URL bar to access the car.

- – Open browser
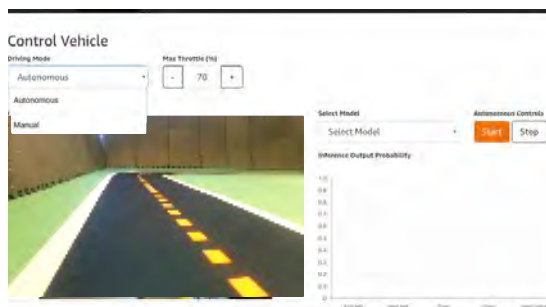- – Enter IP on URL bar and go

Sign in

Access your car by entering the password printed on the bottom of your car.

Choose a Driving mode

Choose **Autonomous** from the **Driving mode** drop down. Then choose your model from the **Select model** dropdown. Models take a few seconds to load.

Autonomous model management

Drive autonomously

To drive autonomously, tap **Start** and **Stop** from the **Autonomous Controls**.