

Getting started with Edison

Guide to setting up for success with Edison robots



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Welcome!

You are now the proud owner of an Edison robot. Edison is the perfect tool to help learn and teach coding, robotics and STEAM (science, technology, engineering, arts and mathematics) in a fun and engaging way.

This guide will help you to get the most out of Edison, including using all of the robot's built-in sensors, outputs and motors. Remember, Edison is a tool designed to introduce you to the amazing world of robotics. Proper care and maintenance are important to help keep your Edison in the best shape possible.

Follow the steps in this guide to get your Edison robot ready to use and prepare your computing devices to work with the Edison robot programming languages.

You can access additional information, including a wide range of downloadable educational resources, activity ideas, tutorial videos and more, at www.meetedison.com.



Go ahead – show off!

We love seeing how classrooms use Edison! If you and your students want to share your Edison EdVenture, be sure to tag us into the fun!



@meetedison twitter.com/meetedison



@meet_edison [instagram.com/meet_edison](https://www.instagram.com/meet_edison)



@meetedison [facebook.com/meetedison](https://www.facebook.com/meetedison)



Get Edison ready

Each Edison robot arrives in a small orange box. Open the box and remove Edison by unrolling the interior cardboard. To get Edison ready for use, you need to complete the following three steps:

1. **Open the battery compartment** at the back of Edison and remove the EdComm programming cable. You can learn more about using the door at <https://meetedison.com/lockable-battery-door/>
2. **Insert 4 'AAA' batteries.** Please refer to the picture and ensure that the batteries are inserted correctly to avoid damaging Edison. Be sure to reclose the battery case by clipping the battery cover back on.



Ensure the batteries are in the right way.

Please note: Low or flat batteries can cause a range of issues with Edison. For this reason, always use fresh, fully charged batteries in your robots.

Choosing batteries: If using disposable batteries with Edison, only ever use alkaline batteries. (These are the most common standard AAA batteries you will find in just about any shop.) If you are using rechargeable batteries with Edison, only use nickel-metal hydride (NiMH) rechargeable batteries. Never use lithium rechargeable, heavy-duty disposable, super heavy-duty disposable or carbon-zinc batteries.

3. **Turn Edison on** by flipping the robot over. Slide the power switch to the 'on' position, as shown in the picture. Doing this will turn Edison on. Edison will make a chirping 'beep' and the red LED lights will start flashing.

Please note: While Edison will turn off automatically if not used after five minutes, we recommend you turn the robots off manually when not in use.



Push the switch towards the 'on' symbol.

Get your programming devices ready

Edison can be programmed using a range of different computers and tablets. Depending on which programming language (EdBlocks, EdScratch or EdPy) you are planning on using initially and the type of computing device you have, there are slightly different setup steps you will need to take. Please follow the steps on the following pages to get your computing device ready to program Edison.



Set up your programming devices for EdBlocks

The best way to set up your programming devices is to run a test program in EdBlocks. Follow these six steps to test EdBlocks on your device:

1. Load the EdBlocks app by opening www.edblocksapp.com in a browser (we strongly recommend Google Chrome¹). Launch the programming app by pushing the orange 'Launch EdBlocks' button. Make sure you allow pop-ups for www.edblocksapp.com.
2. Once the app opens, you will see the programming environment. Open 'Menu' from the menu bar and select 'Load Demos'. A list of demo programs will open in a pop-up window. Select the program called 'Drive example' which will load in the programming environment.
3. Adjust your device's volume to maximum or 100%. Plug the EdComm programming cable into the audio jack of your device.
NOTE: many devices have built-in safety settings that reduce the volume when an audio device is connected to the headphone jack. Always double-check the volume settings after plugging in the EdComm cable to your device.
4. Turn your Edison robot on. Connect the EdComm cable to the bottom of the robot, near the power switch. Press the round (record) button one time.
5. In the EdBlocks app, press the 'Program Edison' button. Follow the instructions on the pop-up and then press the 'Program Edison' button on the pop-up to download the program into Edison.
NOTE: if the 'There seems to be a network issue accessing the compiler' warning message pops up at this point, see 'Troubleshooting 1: Check the connectivity status' in the *Troubleshooting for EdBlocks and EdScratch* section of this guide.
6. While the program is downloading, you will hear a whirring sound, a bit like a dial-up modem. When the download is done, you will hear one of two sounds: the 'success' sound (the same chirping beep Edison makes when you first turn the robot on) or the 'fail' sound (a descending beeping sound)².

SUCCESS: If the robot makes the 'success' sound, unplug it from the EdComm cable, then press the triangle (play) button on Edison one time to run the program. If the program runs successfully in the Edison robot, your programming device is ready to use! There's nothing further you need to do to set-up your device.

FAIL: If the robot fails to download the program, or the program does not play in the robot, work through the 'Troubleshooting for EdBlocks' section that follows.

¹ EdBlocks is compatible with Chrome, Safari, Microsoft Edge and Firefox. To ensure optimal performance, however, it is strongly recommended that you use EdBlocks with Chrome.

² You can hear recordings of both the success and fail sounds at <https://meetiedison.com/edison-robot-support/troubleshooting/#success-fail-sounds>



Set up your programming devices for EdScratch

The best way to set up your programming devices is to run a test program in EdScratch. Follow these six steps to test EdScratch on your device:

1. Load the EdScratch app by opening www.edscratchapp.com in a browser (we strongly recommend Google Chrome³). Launch the programming app by pushing the orange 'Launch EdScratch' button. Make sure you allow pop-ups for www.edscratchapp.com.
2. Once the app opens, you will see the programming environment. Open 'Menu' from the menu bar and select 'Load Demos'. A list of demo programs will open in a pop-up window. Select the program called 'Test_program' which will load in the programming environment.
3. Adjust your device's volume to maximum or 100%. Plug the EdComm programming cable into the audio jack of your device.
NOTE: many devices have built-in safety settings that reduce the volume when an audio device is connected to the headphone jack. Always double-check the volume settings after plugging in the EdComm cable to your device.
4. Turn your Edison robot on. Connect the EdComm cable to the bottom of the robot, near the power switch. Press the round (record) button one time.
5. In the EdScratch app, press the 'Program Edison' button. Follow the instructions on the pop-up and then press the 'Program Edison' button on the pop-up to download the program into Edison.
NOTE: if the '*There seems to be a network issue accessing the compiler*' warning message pops up at this point, see 'Troubleshooting 1: Check the connectivity status' in the *Troubleshooting for EdBlocks and EdScratch* section of this guide.
6. While the program is downloading, you will hear a whirring sound, a bit like a dial-up modem. When the download is done, you will hear one of two sounds: the 'success' sound (the same chirping beep Edison makes when you first turn the robot on) or the 'fail' sound (a descending beeping sound)⁴.

SUCCESS: If the robot makes the 'success' sound, unplug it from the EdComm cable, then press the triangle (play) button on Edison one time to run the program. If the program runs successfully in the Edison robot, your programming device is ready to use! There's nothing further you need to do to set-up your device.

FAIL: If the robot fails to download the program, or the program does not play in the robot, work through the 'Troubleshooting for EdScratch' section that follows.

³ EdScratch is compatible with Chrome, Safari, Microsoft Edge and Firefox. To ensure optimal performance, however, it is strongly recommended that you use EdScratch with Chrome.

⁴ You can hear recordings of both the success and fail sounds at <https://meetiedison.com/edison-robot-support/troubleshooting/#success-fail-sounds>



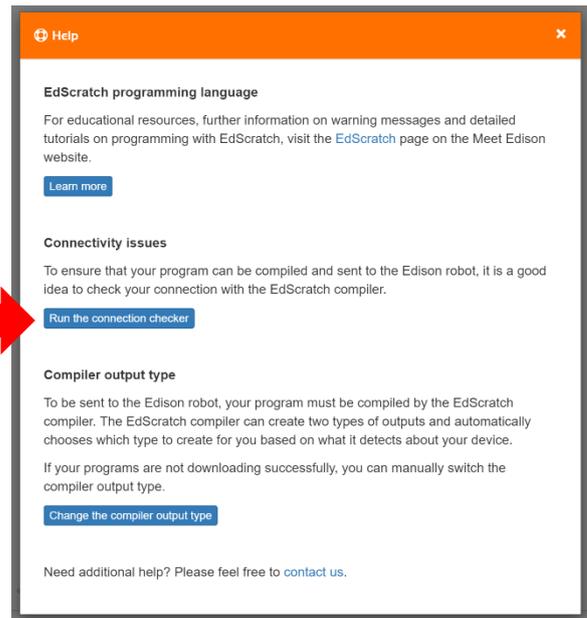
Troubleshooting for EdBlocks and EdScratch

Depending on the type of programming devices you are using and your network, there are a few things you will need to do to troubleshoot your devices and get them working with the EdBlocks and EdScratch apps.

Troubleshooting 1: Check the connectivity status

If you see the *'There seems to be a network issue accessing the compiler'* warning message after pressing the 'Program Edison' button in the EdBlocks or EdScratch app, or if the program failed to download successfully, you will need to check the app's connectivity status.

To work, the EdBlocks and EdScratch apps need to access the compiler (which is what converts the programs you see on the screen into a format that can be sent to the Edison robot). Inside the app (EdScratch at www.edscratchapp.com and EdBlocks at www.edblocksapp.com) open 'Menu' in the upper left-hand corner and select 'Help'. This will open a pop-up which includes the option to 'Run the connection checker'. Click this button to check your connection.



If the connection test result shows 'NO SERVER FOUND' then you may be behind a firewall, common at schools, which is blocking access to the compiler. You will need the network administrator to unblock ports 80, 8080, 443 and 8443 and white list these addresses:

- <https://www.edscratchapp.com>
- <https://www.edblocksapp.com>
- <https://api.edisonrobotics.net>
- 52.8.213.196
- 13.210.175.93
- 52.79.71.19

SUCCESS: Once the connection checker shows you are connected, try downloading and running a test program again. If the program downloads and runs successfully in the Edison robot, your programming device is ready to use! There's nothing further you need to do to set-up your device.

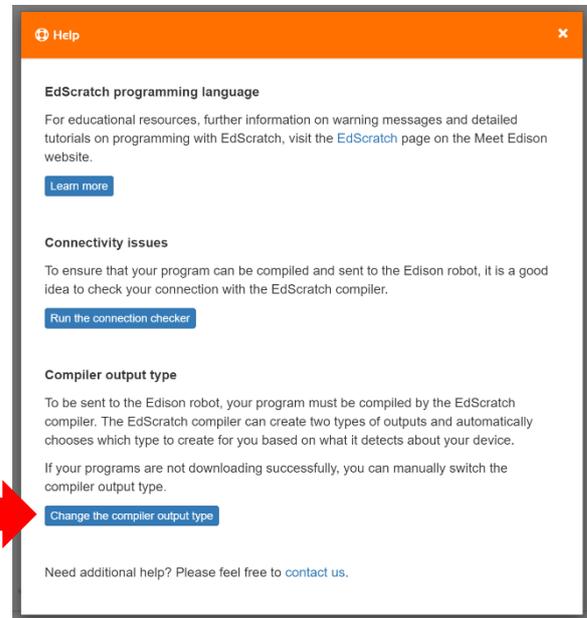
FAIL: If the connection checker shows you are connected, but you are still not able to program Edison, move on to 'Troubleshooting 2: Switch the compiler output type'.



Troubleshooting 2: Switch the compiler output type

To be sent to the Edison robot, your program must be compiled by the Edison compiler. The Edison compiler can create two types of outputs and automatically chooses which type to create for you based on the type of device it detects you are using (such as an Apple tablet or a Windows laptop).

If your programs are not downloading successfully, you can manually switch the compiler output type. Inside the app (EdScratch at www.edscratchapp.com and EdBlocks at www.edblocksapp.com) open 'Menu' in the upper left-hand corner and select 'Help'. This will open a pop-up which includes the option to 'Change the compiler output type'. Click this button to check what device and settings are being detected.



If the device being detected is not accurate, or if your programs are not downloading successfully, you can manually switch the compiler output type. Use the following information to select the output best suited to your device:

Long pulse compiler output

This output type works well on devices with low output volume, including some tablets. If you are using a Mac computer, an iPad tablet or a Windows or Android tablet, the long pulse compiler output should work best for your device.

Short pulse compiler output

This output type works well on devices with sound enhancement software, including most Windows desktop and laptop computers. If you are using a Windows desktop or laptop computer, the short pulse compiler output should work best for your device.

SUCCESS: Once you have changed the compiler output, try downloading and running a test program again. If the program downloads and runs successfully in the Edison robot, your programming device is ready to use! There's nothing further you need to do to set-up your device.

FAIL: If you are still not able to program Edison after changing the compiler output type, check the device-specific troubleshooting advice that follows.



Windows computers – troubleshooting

If you are running a laptop or desktop with a Windows operating system and are still unable to program Edison after running the set-up steps above, try these additional troubleshooting steps.

Disable sound enhancements

If you are using desktops or laptops running Windows operating systems and both the short pulse (recommended) and long pulse compiler output types are failing, you will need to disable sound enhancements.

Please go to <https://meetedison.com/edison-robot-support/troubleshooting/#soundenhancements> to find step-by-step video guides showing you how to disable sound enhancements for standard Windows sound enhancements software as well as the most common third-party software programs.

Once you have sound enhancements disabled, use the long pulse compiler output option.

Check for a volume ‘hard lock’

Some devices, especially in Europe, have a hard lock on volume whenever an audio device is detected. This means that the device is ‘locked’ to only deliver a maximum volume of approximately 75% of the device max volume when an audio device is detected. To correct this, go into the device’s settings and disable the hard lock to enable the device to emit true full volume, even with an audio device plugged in.

Mac computers – troubleshooting

If you are running a Mac laptop or desktop and are still unable to program Edison after running the set-up steps above, try this additional troubleshooting step.

Check the volume settings

Some Macs experience audio clipping errors when attempting to program Edison. If you experience these issues, please try dropping your volume from 100% to between 50% and 90% instead.

Tablets – troubleshooting

If you are running an Apple, Android or Windows tablet and are still unable to program Edison after running the set-up steps above, try this additional troubleshooting step.



Check the volume settings

Many devices have built-in safety settings that reduce the volume when an audio device is connected using the headphone jack. Please check that your volume is turned all the way up to 100% after plugging in the EdComm programming cable to your device.

Some devices, especially in Europe, have a hard lock on volume whenever an audio device is detected. This means that the device is 'locked' to only deliver a maximum volume of approximately 75% of the device max volume when an audio device is detected. To correct this, go into the device's settings and disable the hard lock, to enable the device to emit true full volume, even with an audio device plugged in.

Please note: most mobile phones do not have the audio output to program Edison using EdBlocks or EdScratch. We do not recommend using mobile phones as programming devices with Edison.

Chromebooks – troubleshooting

If you are running a Chromebook and still unable to program Edison after running the set-up steps above, try this additional troubleshooting step.

Disable sound enhancements

Some Chromebooks, including some Dell Chromebooks, have low audio output but also have sound enhancements. If you are using a Chromebook and both the short pulse (recommended) and long pulse compiler output types are failing, you will need to disable sound enhancements.

Sound enhancements are common on Windows machines and we have step-by-step video guides at <https://meetedison.com/edison-robot-support/trouble-shooting/#soundenhancements> showing you how to disable sound enhancements for standard Windows sound enhancements as well as the most common third-party software programs. Depending on the manufacturer, your Chromebook may have similar sound enhancement software.

Once you have sound enhancements disabled, use the long pulse compiler output option.

Still not working?

You can find additional troubleshooting guidance on our website at <https://meetedison.com/edison-robot-support/trouble-shooting/> or you can contact us for support at <https://meetedison.com/edison-robot-support/contact-us/>

Our team of friendly Technical Support Officers will do their best to help you out!



Set up your programming devices for EdPy

The best way to set up your programming devices is to run a test program in EdPy. Follow these seven steps to test EdPy on your device:

1. Load the EdPy app by opening www.edpyapp.com in a browser (we strongly recommend Google Chrome⁵). Launch the programming app by pushing the orange 'Launch EdPy' button. Make sure you allow pop-ups for www.edpyapp.com.
2. When the app opens, you will see a prompt to select your Edison version. Choose the version of Edison that matches your robot. Once selected, the programming environment will load set-up for your version of the robot.
3. On the left-hand side of the programming environment is the list of programs, including the 'Examples' demo programs. Select the program called 'Test_program' which will load in the programming environment⁶.
4. Adjust your device's volume to maximum or 100%. Plug the EdComm programming cable into the audio jack of your device.
NOTE: many devices have built-in safety settings that reduce the volume when an audio device is connected to the headphone jack. Always double-check the volume settings after plugging in the EdComm cable to your device.
5. Turn your Edison robot on. Connect the EdComm cable to the bottom of the robot, near the power switch. Press the round (record) button one time.
6. In the EdPy app, press the 'Program Edison' button. Follow the instructions on the pop-up and then press the 'Program Edison' button on the pop-up to download the program into Edison.
7. While the program is downloading, you will hear a whirring sound, a bit like a dial-up modem. When the download is done, you will hear one of two sounds: the 'success' sound (the same chirping beep Edison makes when you first turn the robot on) or the 'fail' sound (a descending beeping sound)⁷.

SUCCESS: If the robot makes the 'success' sound, unplug it from the EdComm cable, then press the triangle (play) button on Edison one time to run the program. If the program runs successfully in the Edison robot, your programming device is ready to use! There's nothing further you need to do to set-up your device.

FAIL: If the robot fails to download the program, or the program does not play in the robot, work through the 'Troubleshooting for EdPy' section that follows.

⁵ EdPy is compatible with Chrome, Safari, Microsoft Edge and Firefox. To ensure optimal performance, however, it is strongly recommended that you use EdPy with Chrome.

⁶ The Test_program is setup for Version 2.0 Edison robots. If you have Version 1 Edison robots, you will need to adjust the 'Ed.EdisonVersion' in the setup code to be '= Ed.V1' (rather than '= Ed.V2').

⁷ You can hear recordings of both the success and fail sounds at <https://meettedison.com/edison-robot-support/troubleshooting/#success-fail-sounds>



Troubleshooting for EdPy

Depending on the type of programming devices you are using and your network, there are a few things you will need to do to troubleshoot your devices and get them working with the EdPy app.

Troubleshooting 1: Check for a firewall

If you cannot access the EdPy app at all, or if programs are failing to download, you may be behind a firewall which is common at schools. Ask the network administrator to white list <https://www.edpyapp.com>

SUCCESS: Once the address has been white listed, try downloading and running a test program. If the program downloads and runs successfully in the Edison robot, your programming device is ready to use! There's nothing further you need to do to set-up your device.

FAIL: If you can access the EdPy app, but you are not able to program Edison, move on to 'Troubleshooting 2: Try low.edpyapp'.

Troubleshooting 2: Try low.edpyapp

To be sent to the Edison robot, your program must be compiled by the EdPy compiler. The EdPy app creates a compiled file that is sent to the Edison robot as an audio file. The app at www.edpyapp.com creates an audio output type that works well for most devices, such as computers and laptops running Windows. This output does not work for some programming devices which have low output volume, however, including some Chromebooks and touch-screen laptops.

If your programs are not downloading successfully, go to <https://low.edpyapp.com/> and try downloading and running a test program there. This low.edpyapp version of the EdPy app functions exactly like the main app at www.edpyapp.com, except that it creates a different type of compiled output which works better on devices with low output volumes.

SUCCESS: If you can successfully download and run a test program on low.edpyapp but not the main EdPy app, your programming device has a low volume output. You will need to use low.edpyapp ongoing, but other than that, your programming device is ready to use! There's nothing further you need to do to set-up your device.

FAIL: If you are not able to program Edison using either the EdPy app or the low.edpyapp version, check the device-specific troubleshooting advice that follows.



Windows computers – troubleshooting

If you are running a laptop or desktop with a Windows operating system and are still unable to program Edison after running the set-up steps above, try these additional troubleshooting steps.

Disable sound enhancements

If you are using desktops, laptops or touch-screen laptops running Windows operating systems and are unable to program using either the EdPy app or the [low.edpyapp](http://low.edpyapp.com) version of the app, you will need to disable sound enhancements.

Please go to <https://meet Edison.com/edison-robot-support/troubleshooting/#soundenhancements> to find step-by-step video guides showing you how to disable sound enhancements for standard Windows sound enhancements software as well as the most common third-party software programs.

Once you have sound enhancements disabled, test a program download at both www.edpyapp.com and low.edpyapp.com. In general, devices that require this step will only work using the low.edpyapp.com version.

Check for a volume ‘hard lock’

Some devices, especially in Europe, have a hard lock on volume whenever an audio device is detected. This means that the device is ‘locked’ to only deliver a maximum volume of approximately 75% of the device max volume when an audio device is detected. To correct this, go into the device’s settings and disable the hard lock to enable the device to emit true full volume, even with an audio device plugged in.

Chromebooks – troubleshooting

If you are running a Chromebook and still unable to program Edison after running the set-up steps above, try this additional troubleshooting step.

Disable sound enhancements

Some Chromebooks, including some Dell Chromebooks, have low audio output but also have sound enhancements. If you are using a Chromebook and both the short pulse (recommended) and long pulse compiler output types are failing, you will need to disable sound enhancements.

Sound enhancements are common on Windows machines and we have step-by-step video guides at <https://meet Edison.com/edison-robot-support/troubleshooting/#soundenhancements> showing you how to disable sound enhancements for standard Windows sound enhancements as well as the most common third-party software programs. Depending on the manufacturer, your Chromebook may have similar sound enhancement software.

Once you have sound enhancements disabled, test a program download at both www.edpyapp.com and low.edpyapp.com. In general, devices that require this step will only work using the low.edpyapp.com version.



Mac computers – troubleshooting

If you are running a Mac laptop or desktop and are still unable to program Edison after running the set-up steps above, try this additional troubleshooting step.

Check the volume settings

Some Macs experience audio clipping errors when attempting to program Edison. If you experience these issues, please try dropping your volume from 100% to between 50% and 90% instead.

Tablets – troubleshooting

If you are running an Apple, Android or Windows tablet and are still unable to program Edison using either the EdPy app or the low.edpyapp version of the app after running the set-up steps above, try this additional troubleshooting step.

Please note: EdPy can be run on most tablets. However, text-based programming is not suited to tablet devices and can be quite difficult to do. We do not recommend using tablets to program in EdPy.

Please note: most mobile phones do not have the audio output to program Edison using EdPy. We strongly advise against using mobile phones as programming devices with Edison.

Check the volume settings

Many devices have built-in safety settings that reduce the volume when an audio device is connected using the headphone jack. Please check that your volume is turned all the way up to 100% after plugging in the EdComm programming cable to your device.

Some devices, especially in Europe, have a hard lock on volume whenever an audio device is detected. This means that the device is 'locked' to only deliver a maximum volume of approximately 75% of the device max volume when an audio device is detected. To correct this, go into the device's settings and disable the hard lock, to enable the device to emit true full volume, even with an audio device plugged in.

Still not working?

You can find additional troubleshooting guidance on our website at <https://meetedison.com/edison-robot-support/trouble-shooting/> or you can contact us for support at <https://meetedison.com/edison-robot-support/contact-us/>

Our team of friendly Technical Support Officers will do their best to help you out!



Meet Edison

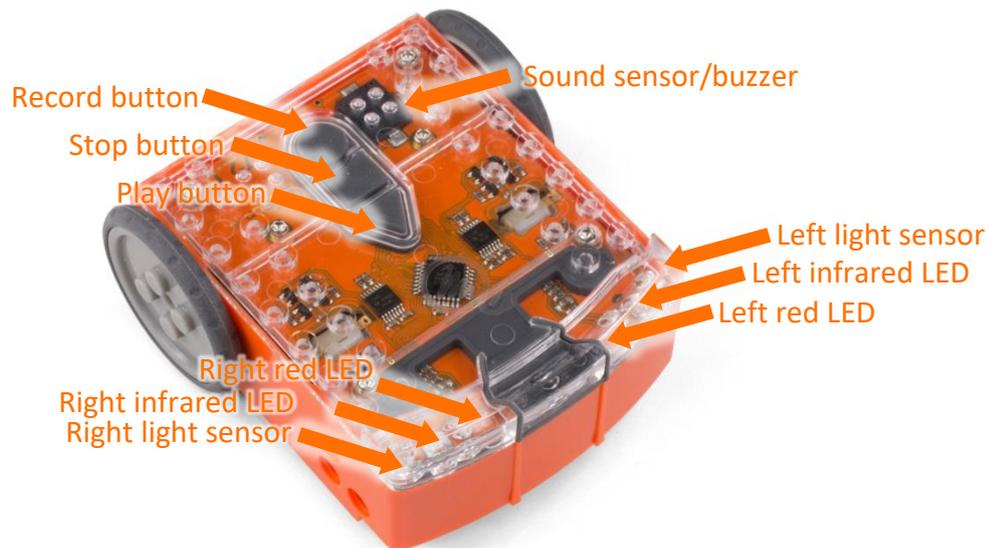
Your Edison robot is LEGO brick compatible on four of its sides, has a removable skid and two removable wheels and includes a range of built-in sensors. Familiarity with your robot will allow you to create an incredible range of robotics and coding projects.



The top of Edison is transparent so you can see the electronics inside.

Edison's sensors, buttons and switches

To use Edison, you're going to need to know where all of Edison's sensors are located and become familiar with the robot's three buttons.



Top view: Edison's sensors and buttons.

Default settings of Edison's three buttons:

- **Record button** → 1 press = download program
→ 3 presses = scan barcode
- **Stop button** → 1 press = stop program
- **Play button** → 1 press = run program

Turn the Edison robot over to see where the power switch, removable skid, and line tracking sensor are located on the bottom.

Edison's line tracking sensor is made up of two parts: a red LED light and a light sensor.

The line tracking sensor also reads special barcodes that activate pre-installed programs.



Location of Edison's power switch, skid, and line tracking sensor.

Connecting Edison to a computer or tablet

You also need to know how to connect Edison to a computer or tablet using the EdComm cable to be able to download programs.

To connect Edison, plug the audio jack end of the EdComm cable into the headphone socket on your computer or tablet. The other end of the EdComm cable connects to your Edison robot as shown.



The EdComm programming cable.



How to attach the EdComm programming cable to Edison.

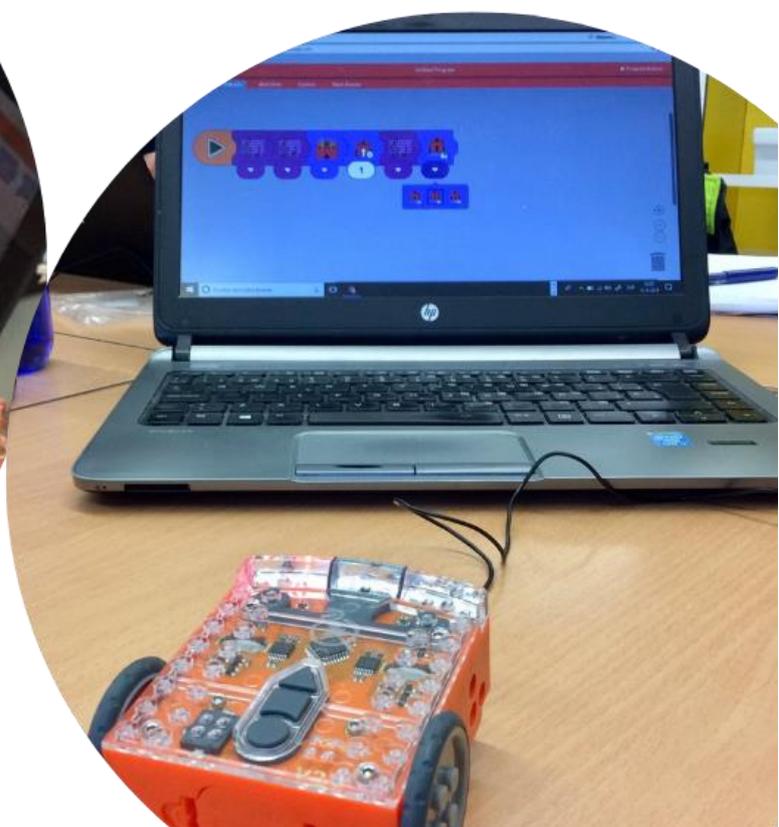
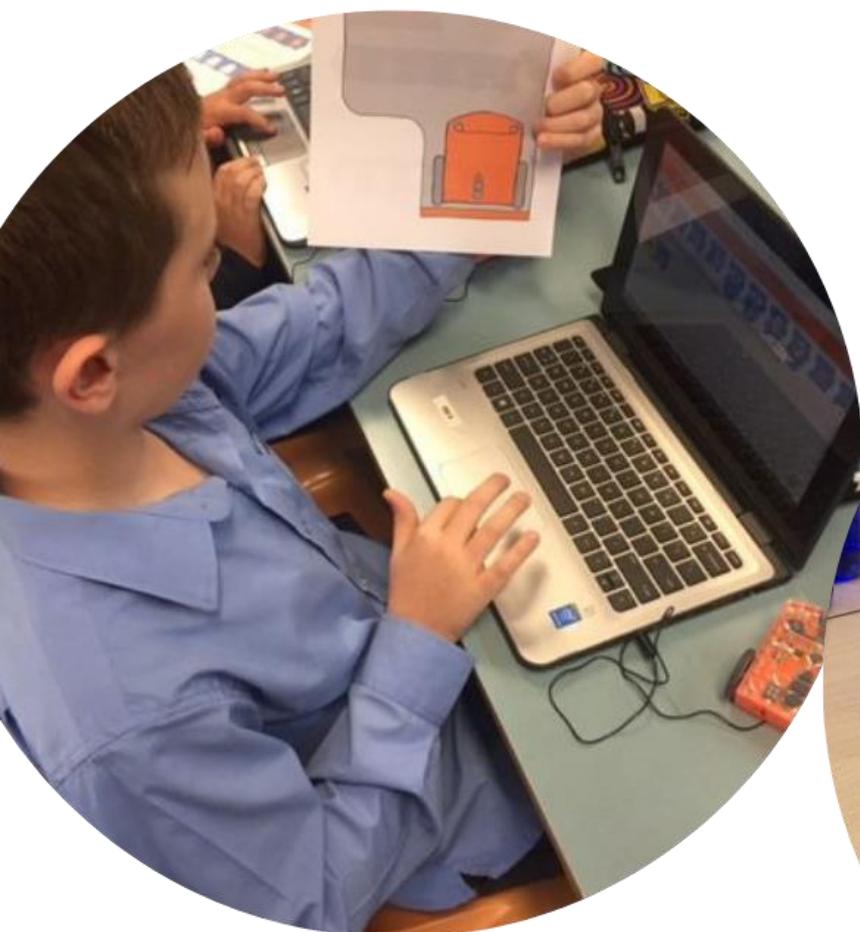
Programming Edison

Edison can be programmed using pre-set barcodes and via a range of programming languages through our free web apps. When you use any of the online programming languages, you will need to code a program for Edison in the programming application, then download that program into your Edison robot to run the program. While your program is downloading, Edison will make sounds similar to an old dial-up modem. This is the sound of the program downloading into Edison.

Once the program has finished downloading⁸, Edison will let you know if you have successfully programmed the robot or not by playing one of two sets of sounds:

- the 'success sound' set of beeps (the same chirping beep Edison makes when you first turn the robot on), indicating Edison has successfully received the program, or
- the 'fail sound' set of beeps (a descending beeping sound), indicating the program failed to download correctly.

You can hear recordings of both the 'success sound' and the 'fail sound' at <https://meetedison.com/edison-robot-support/trouble-shooting/#success-fail-sounds>



⁸ Edison will also make either the 'success' or 'fail' sound after the robot finishes scanning a barcode.

Barcodes

Edison comes with several pre-set programs already loaded into the robot's memory. These programs are activated when Edison scans one of the pre-set barcodes. The barcodes tell Edison to run the correct pre-set program when the triangle button is pressed.

All of the barcodes and information about how to use the barcodes is available at <https://meet Edison.com/barcodes/>. There is also a free-to-download activity book called *Barcodes and Edison* available at <https://meet Edison.com/activity-books/barcodes-and-edison/> which includes activities and fun facts.

Tips for using barcodes:

- Make sure the removable skid is in Edison. When the skid is out, Edison sits with the line sensor right on the ground, and cannot properly detect the barcodes.
- Never use shiny paper or glossy laminate on pages with Edison's barcodes. The resulting reflection can cause problems with Edison not properly scanning the barcodes. Only use low-shine paper and matte-finish laminate.
- Avoid running Edison over barcodes in very bright light, such as sunlight, as this can interfere with the robot's ability to scan the barcodes correctly.

There are six pre-set barcode programs that you can use with Edison:

- Clap controlled driving – Make Edison turn or drive by clapping your hands.
- Avoid obstacles – Activate Edison's obstacle detection beam, enabling Edison to detect and avoid certain obstacles.
- Follow a torch – Activate Edison's visible light sensors and use them to control Edison's driving behaviour towards the brightest light source.
- Line tracking – Activate Edison's reflected light line-tracking sensor and use it to control Edison's driving behaviour to follow the edge of a black line.
- Bounce in borders – Activate Edison's reflected light line-tracking sensor and use it to control Edison's driving behaviour to stay within a black border.
- Sumo wrestle – Activate this barcode in two or more Edison robots and put them into a black border. Watch them wrestle it out by detecting each other and charging forward at full speed!

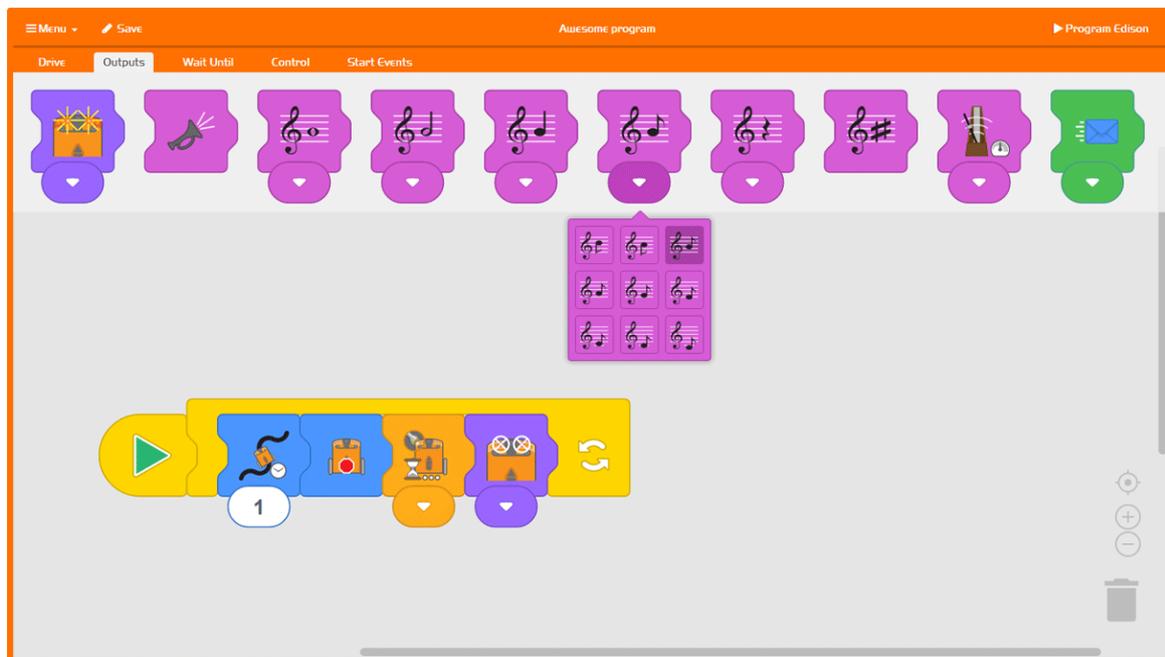
There are two other types of barcodes used for specific purposes with Edison:

- TV/DVD remote control barcodes – Program Edison to respond to a range of commands using your TV or DVD remote.
- Calibration barcodes – Used to perform specific maintenance on your Edison robot.



EdBlocks

EdBlocks is a fully graphical robot programming language that is super easy to use. A drag-and-drop block-based system, EdBlocks is intuitive and fun, even for younger users. Perfect for introducing anyone to programming, EdBlocks requires no prior coding knowledge to get started.



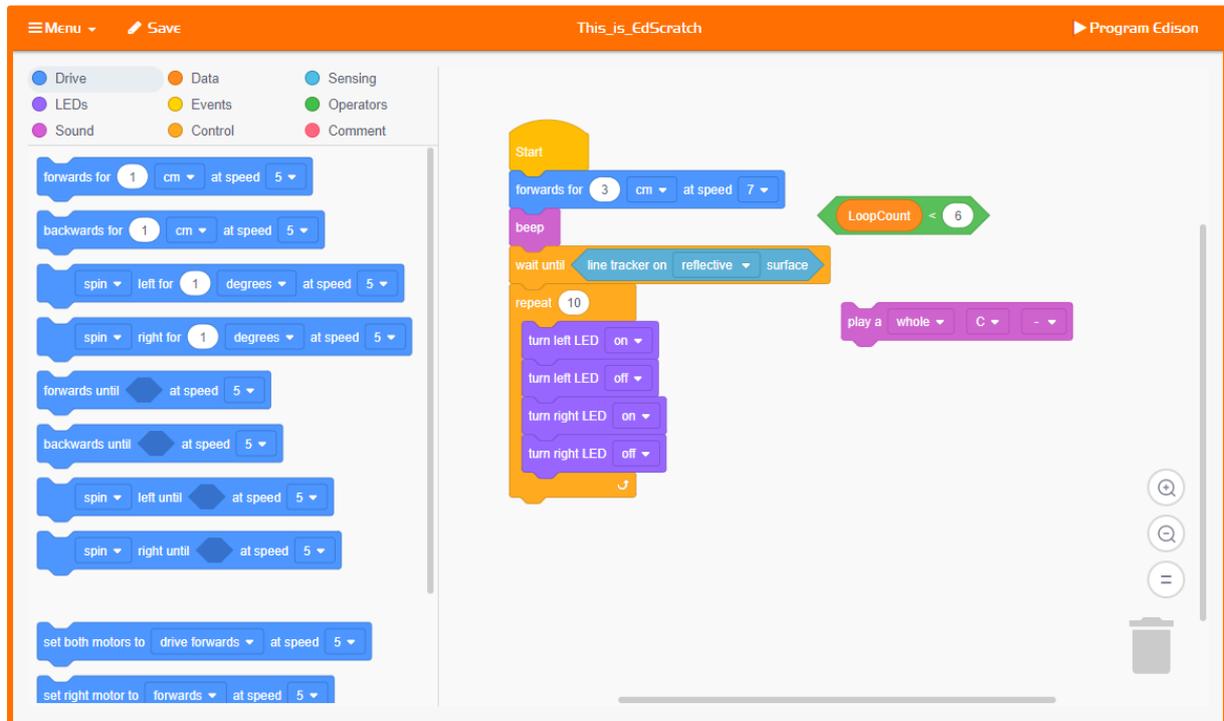
EdBlocks Resources

- EdBlocks programming language app - <https://www.edblocksapp.com/>
- Getting started with EdBlocks video - <https://meetedison.com/robot-programming-software/edblocks/#edblocksvideo>
- Teacher's guide to EdBlocks lesson activities and student worksheets - <https://meetedison.com/content/EdBlocks-teachers-guide-complete.pdf>
- Student worksheet set: 23 lesson activity worksheets - <https://meetedison.com/content/EdBlocks-lesson-activities-complete-set.pdf>
- Block guide - <https://meetedison.com/content/EdBlocks-block-guide.pdf>



EdScratch

EdScratch is a vertical block-based programming language for the Edison robot based on Scratch. EdScratch combines the ease of drag-and-drop programming with powerful functionality and flexibility.



EdScratch Resources

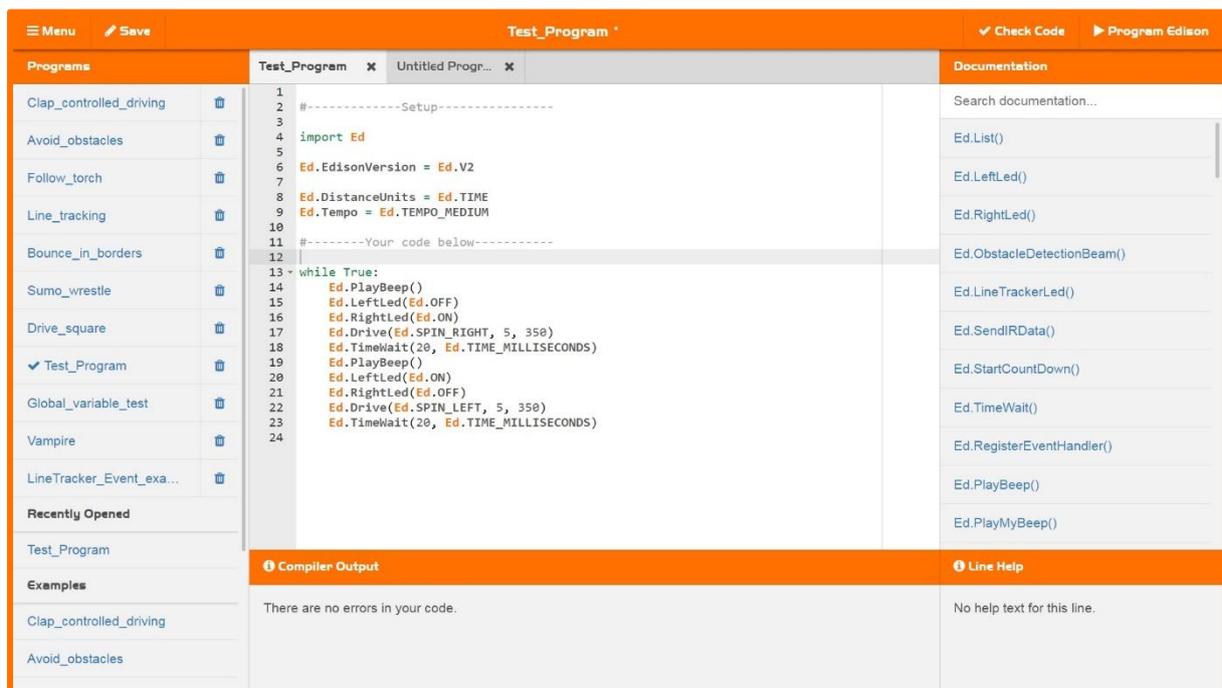
- EdScratch programming language app - <https://www.edscratchapp.com/>
- Teacher's guide to EdScratch - <https://meetedison.com/content/EdScratch/EdScratch-teachers-guide.pdf>
- Student worksheet set: 98 activities with 25 test space activity sheets - <https://meetedison.com/content/EdScratch/EdScratch-student-lesson-activities.pdf>
- Let's explore EdScratch video - <https://meetedison.com/robot-programming-software/edscratch/#lets-explore-edscratch>
- EdScratch tutorial videos (set of 5) - <https://meetedison.com/robot-programming-software/edscratch/#edscratch-tutorial-videos>

EdScratch is developed by Microbric Pty Ltd using open source software created and maintained by the Scratch Foundation. The Scratch Foundation does not sponsor, endorse, or authorize this content. See scratch.mit.edu for more information.



EdPy

EdPy is a highly versatile text-based programming language. EdPy is based on Python, a popular computer programming language renowned for being easy-to-learn with high readability. EdPy makes text-based programming fun by letting students see their code come to life in their Edison robot. With EdPy, students are learning the core of a real programming language and can take their exploration of robotics and coding to a more advanced level.



```
1 #-----Setup-----
2
3
4 import Ed
5
6 Ed.EdisonVersion = Ed.V2
7
8 Ed.DistanceUnits = Ed.TIME
9 Ed.Tempo = Ed.TEMPO_MEDIUM
10
11 #-----Your code below-----
12
13 while True:
14     Ed.PlayBeep()
15     Ed.LeftLed(Ed.OFF)
16     Ed.RightLed(Ed.ON)
17     Ed.Drive(Ed.SPIN_RIGHT, 5, 350)
18     Ed.TimeWait(20, Ed.TIME_MILLISECONDS)
19     Ed.PlayBeep()
20     Ed.LeftLed(Ed.ON)
21     Ed.RightLed(Ed.OFF)
22     Ed.Drive(Ed.SPIN_LEFT, 5, 350)
23     Ed.TimeWait(20, Ed.TIME_MILLISECONDS)
24
```

EdPy Resources

- EdPy programming language app - <http://www.edpyapp.com/>
- Teacher's guide to EdPy student worksheets and lesson plans - <https://meetedison.com/content/EdPy-teachers-guide-complete.pdf>
- Student worksheet set: 38 worksheets with 9 activity sheets - <https://meetedison.com/content/EdPy-student-worksheets-complete.pdf>
- EdPy documentation help text offline guide - <https://meetedison.com/content/EdPy-app-documentation-guide.pdf>
- EdPy tutorial videos (set of 10) - <https://meetedison.com/robot-programming-software/edpy/#edpyvideoall>



Teaching with Edison

Edison is a complete STEM teaching resource for coding and robotics education which grows with students.

Students age (years old)	Recommended programming type	Prerequisites
4+	Barcodes and remote controls	No prior experience with programming or robotics is assumed or required.
7+	EdBlocks	No prior experience with programming or robotics is assumed or required.
10+	EdScratch	A basic understanding of programming fundamentals may be helpful.
13+	EdPy	A basic understanding of programming fundamentals will be helpful.

What to teach first

We highly recommend you spend time to get your students familiar with Edison as your very first lesson. When students are familiar with Edison's three buttons, sensor placements and capabilities plus have an understanding of how to download programs, they are far more successful with everything that comes next.

We also recommend using the barcodes as an early activity with students of any age. Seeing their robot come to life and perform a range of actions engages and motivates students to learn more⁹.

Teaching the programming languages

Edison robots can be programmed using three different progressive coding languages. All of the programming languages for Edison can be accessed through free-to-use web applications – no extra software is required. Lesson plans, including student worksheets and teacher's guides, are available for free online:

- **EdBlocks:** <https://meet Edison.com/robot-programming-software/edblocks/#edblocks-resources>
- **EdScratch:** <https://meet Edison.com/robot-programming-software/edscratch/#EdScratch-resources>
- **EdPy:** <https://meet Edison.com/robot-programming-software/edpy/#edpy-resources>

⁹ The *Barcodes and Edison* activity book, available at <https://meet Edison.com/activity-books/barcodes-and-edison/>, is a great place to start as it contains all the barcodes you will need along with instructions and fun facts. Alternatively, all of the Edison programming languages lesson plans include barcode activities as early lessons.



Troubleshooting

Edison robots are designed to be easy to use straight out of the box but powerful enough to grow with students on their robotics and coding journeys. Like any computing device, issues can occasionally arise with Edison.

Where to start

Low or flat batteries and improperly set up programming devices are the most common causes behind problems using Edison.

If you do encounter an issue, always start by checking Edison's batteries. Remember, low or flat batteries can cause a range of issues with Edison.

Next, make sure the programming device you are using is properly set up as detailed in this guide. Also, check that your device's volume is turned all the way up.

Drive troubleshooting

On occasion, you may need to straighten the drive of your Edison robot. If you are having trouble with how Edison is driving, such as the robot is not driving straight, you will need to perform a drive calibration on the robot.

Full instructions and the resources you need for your version robot can be found at <https://meetedison.com/edison-robot-support/drive-calibration/>

Line tracking troubleshooting

If you are having trouble with a line tracking program, check the following:

- Only use non-glossy paper and, if laminating the paper, only use a matte-finish laminate.
- Edison will be best able to follow a line if that line is a very dark colour (such as black), approximately 1.5cm (0.6 inches) wide and located on a white background.
- Always start the robot on the white background, never on the line itself.
- Avoid running line tracking programs in very bright light, such as sunlight, as this can negatively affect the program.
- All of the Edison programming languages except for EdBlocks and the barcodes require the line tracking sensor to be turned on to work. Double-check your program to ensure you have the line tracking sensor turned on.



Obstacle detection troubleshooting

If you are having trouble with an obstacle detection program, check the following:

- Ensure that your Edison robot's obstacle detection is properly calibrated using the barcode and instructions available at <https://meetedison.com/obstacle-detection-calibration/>.
- Edison will be best able to detect obstacles which are opaque but not too dark (e.g. not black) and at least as tall as Edison.
- Avoid running obstacle detection programs in very bright light, such as sunlight, as this can negatively affect the program.
- All of the Edison programming languages except for EdBlocks and the barcodes require the obstacle detection sensor to be turned on to work. Double-check your program to ensure you have the obstacle detection sensor turned on.

Where to get help

The following places are available for ongoing support with your Edison robot:

- Online troubleshooting guide at <https://meetedison.com/edison-robot-support/trouble-shooting/>
- A range of support topics, with step-by-step guidance, are detailed at <https://meetedison.com/edison-robot-support/>
- The official Edison robot online forum at <https://meetedison.com/forum/>
- You can also contact the technical support team by completing a help request form at <https://meetedison.com/edison-robot-support/contact-us/>

Looking for more ideas?

The wonderful members of the Edison community love to share their ideas and designs. Check out the amazing resources available across our social media platforms:

- Facebook: @MeetEdison
- Twitter: @meetedison
- Instagram: @meet_edison
- YouTube: <https://www.youtube.com/user/microbric>
- Pinterest: <https://au.pinterest.com/meetedison/boards/>

We also share new activity ideas, lessons and more in our newsletter. Be sure to sign up: <https://meetedison.com/keep-up-with-edison/>

Have something that you want to share with us? Tag us or send us an email at social@microbric.com – we love seeing your projects, photos and videos!



Checklist: setting up for success with your Edison robot

These critical steps and quick references will help you to set up your Edison robot for success every time!

Edison basics

- Batteries:** Use fresh, full batteries. Only use regular disposable alkaline batteries or nickel-metal hydride (NiMH) rechargeable batteries. Never use super heavy duty or heavy-duty batteries. Make sure the batteries are inserted correctly.
- EdComm cable:** The cable initially comes in the battery compartment of Edison. Be sure to push the cable fully into the audio jack on your programming device.
- Paper:** Do not use glossy paper and only ever use matte-finish lamination. This is especially important for barcodes and line tracking.
- Set volume to maximum:** Confirm your device's volume is all the way up when programming Edison. Double-check the volume after you plug in the EdComm cable.
- Avoid sunlight:** Sunlight confuses Edison's sensors. Avoid using the robot in bright, direct sunlight.

Sensors and programs

- Barcodes:** Print barcodes on non-glossy paper and only use a matte-finish lamination if laminating. Make sure Edison's skid is in before reading barcodes.
- Line tracking programs:** Always start Edison on the white surface, never on the black surface.
- Detecting lines:** Use dark (e.g. black) lines approximately 1.5cm (0.6 inches) wide on a very reflective (e.g. white) background.
- Obstacle detection calibration:** Adjust Edison's obstacle detection with the obstacle detection barcode. See <https://meetiedison.com/obstacle-detection-calibration/> for detailed instructions.
- Detecting obstacles:** Choose obstacles that are opaque but not too dark (e.g. not black) and at least as tall as Edison.

