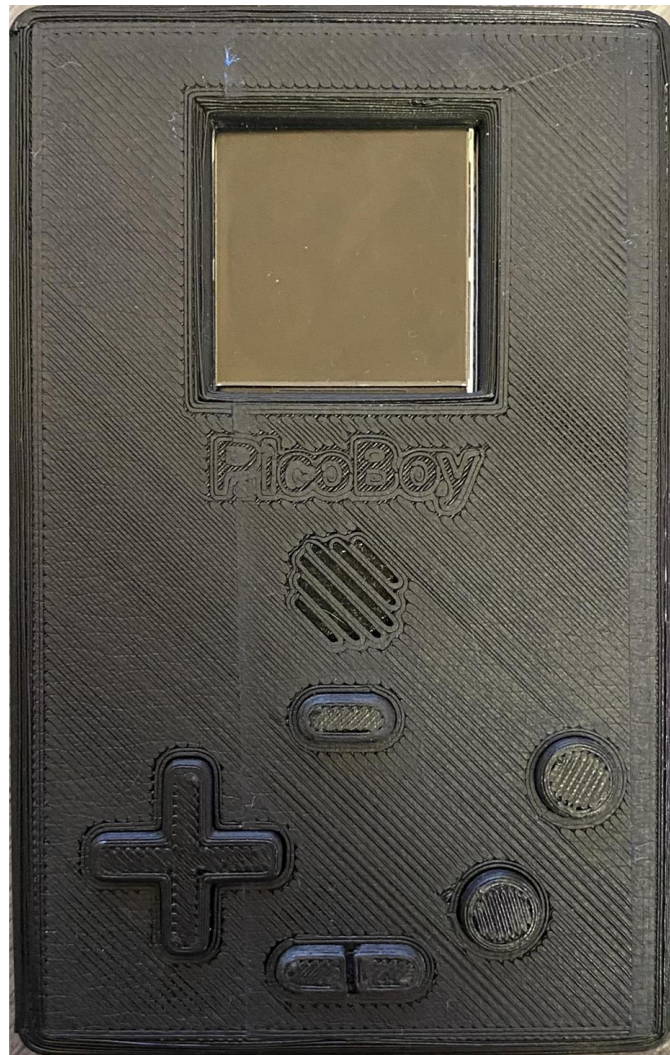


PicoBoy User Guide



Created by HalloSpaceBoy

[Discord](#)

[GitHub](#)

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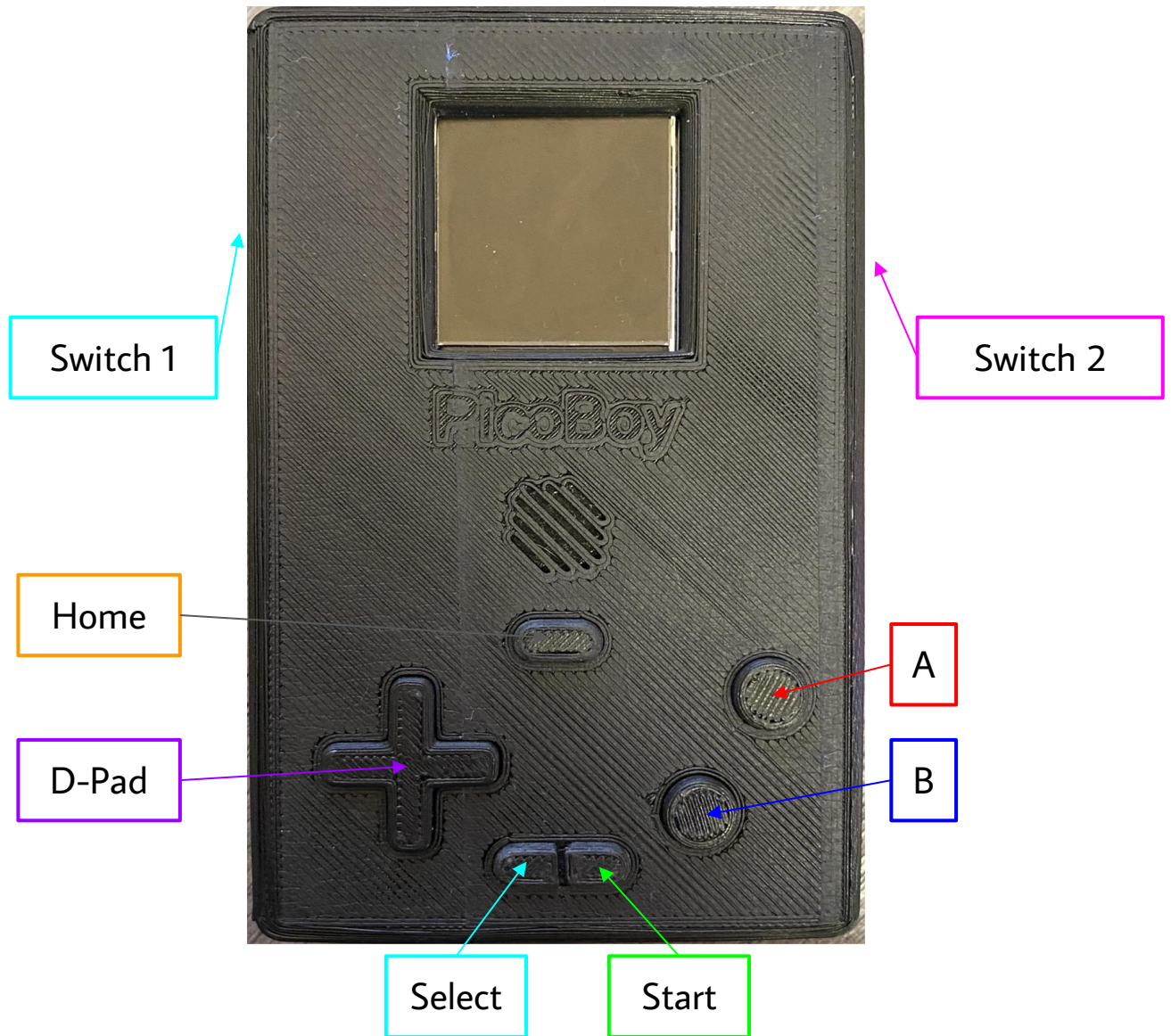
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Button Layout V1



Button Functions

A - Action button used for different functions on a game-by-game basis

B - Action button used for different functions on a game-by-game basis

Select - Generally used for selection in game. Also used for OS shortcuts.

Start - Generally used for selection/pausing in game

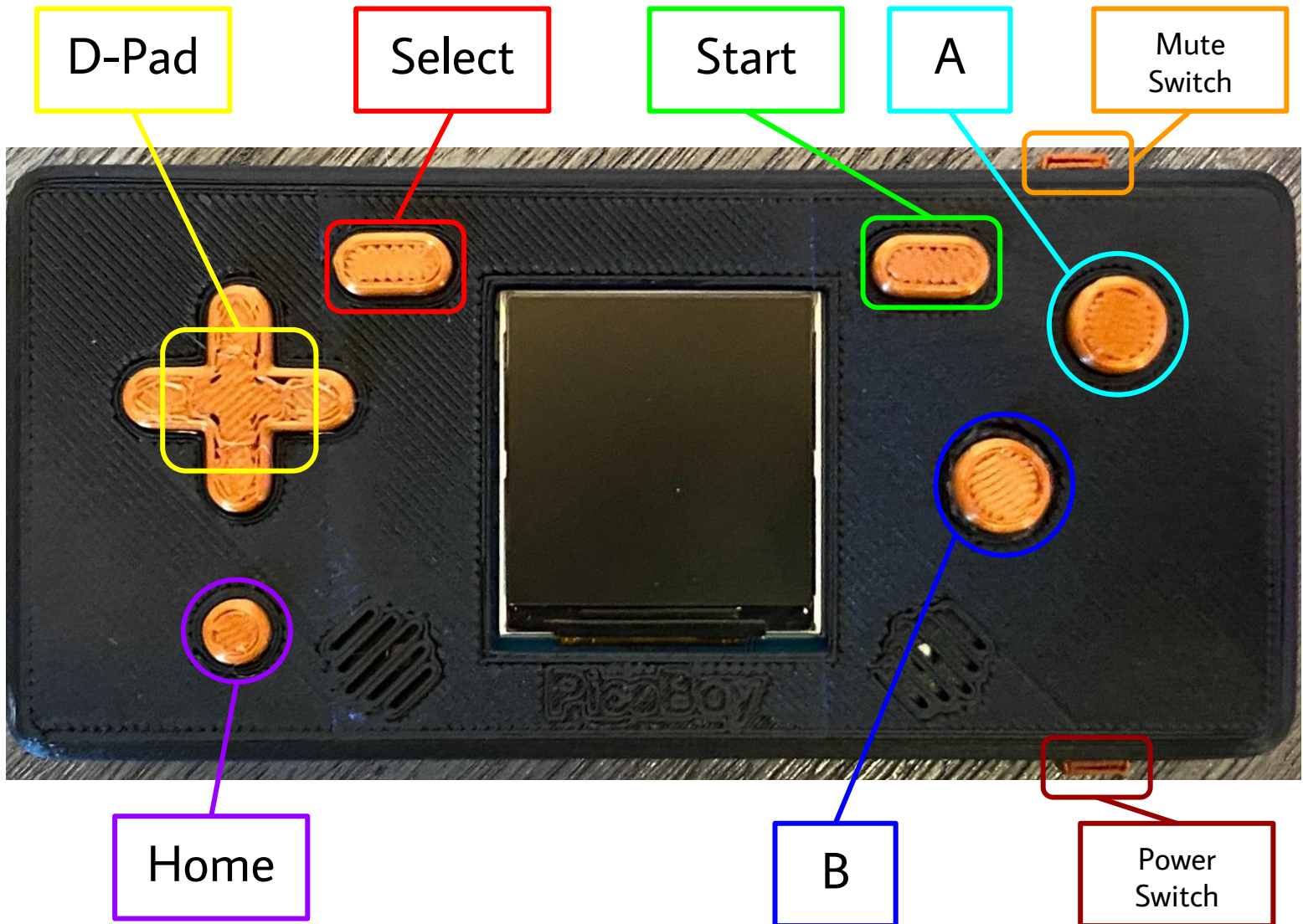
Home - Quits game and returns to the home screen

D-Pad - Generally used for movement in game

Switch 1 - Depending on your wiring it can be used for muting the audio or to turn the console on/off

Switch 2 - Depending on your wiring it can be used for muting the audio or to turn the console on/off

Button Layout V2



Button Functions

- A - Action button used for different functions on a game-by-game basis
- B - Action button used for different functions on a game-by-game basis
- Select - Generally used for selection in game. Also used for OS shortcuts.
- Start - Generally used for pausing in game
- Home - Quits game and returns to the home screen
- D-Pad - Generally used for movement in game
- Mute Switch - Mutes the console's speakers
- Power Switch - Turns the console on and off.

First Time Setup

When you format your PicoBoy, you will be greeted by a first time setup screen. Use these instructions to help guide you through setting up and testing your PicoBoy

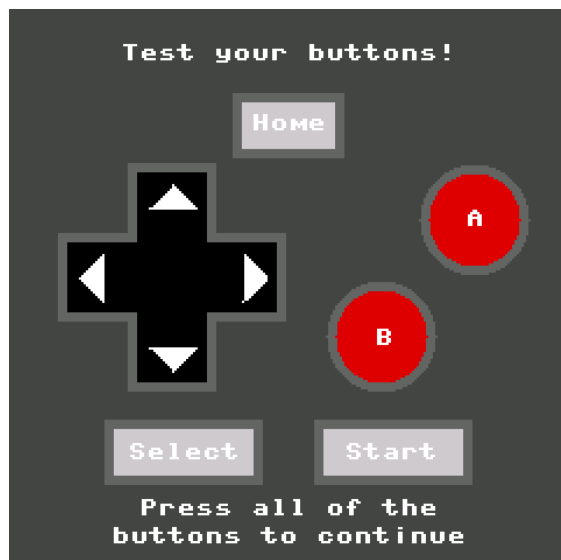
1. Upon starting your freshly formatted PicoBoy, you will be asked which language you would like to use. Choose a language:



2. After choosing a language, read the instructions on screen and press A when you are done:



3. After pressing A, you will find a button testing screen. Press all of your buttons to test them:



4. After pressing a button, you should see a checkmark appear on top of it. If a button you press doesn't have a checkmark, check it's soldering.



First Time Setup

5. After testing your buttons, you will see a screen for testing your sound. Press A to continue:

```
Test your sound!

(Flip the switch on the
top to the left)

When you hear a sound
press the A button.

Press A to begin testing.
```

7. If the tested channel makes a sound, it will pass the test. Otherwise, it will fail. You will see either of these screens:

```
Test your sound!

(Flip the switch on the
top to the left)

Testing channel 1
Channel 1 passed!

When you hear a sound,
press the A button.
```

```
Test your sound!

(Flip the switch on the
top to the left)

Testing channel 1
Channel 1 failed!

When you hear a sound,
press the A button.
```

You will have to test all 4 sound channels, your PicoBoy will move onto the next channel automatically, so be ready.

6. Your PicoBoy will begin its sound test. **When you hear a sound, press the A button. If you don't, the test will fail! If you don't hear a sound, don't press the A button!**

```
Test your sound!

(Flip the switch on the
top to the left)

Testing channel 1


When you hear a sound,
press the A button.
```

8. If you passed the sound test, you will move onto the tests passed screen. To continue to system configuration, press A:

```
Tests Passed!

Your PicoBoy has passed
all of its hardware tests.

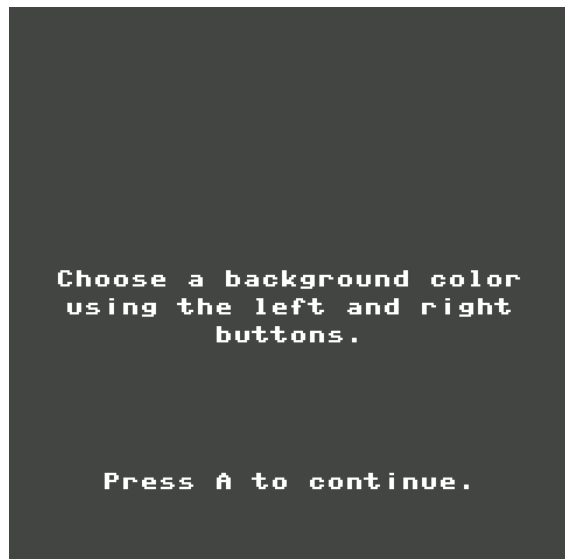
Now lets start configuring
your PicoBoy!



Press A to continue!
```

First Time Setup

9. After pressing A, you will find a screen asking you to choose a background color. Use the left and right buttons to change colors and A to continue:



10. After choosing a background color, change the brightness of the screen to the level you want. Use the left and right buttons to change it and the A button to continue.



11. After changing the brightness, change the volume of the speakers to the level you want. Use the left and right buttons to change it and the A button to continue.



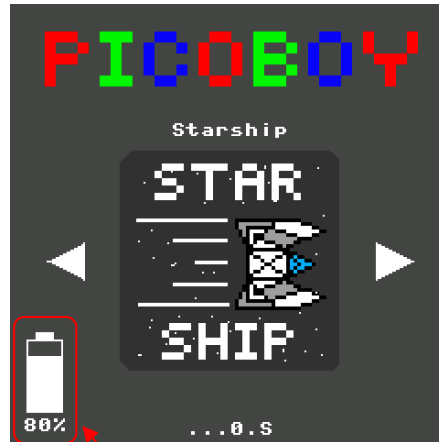
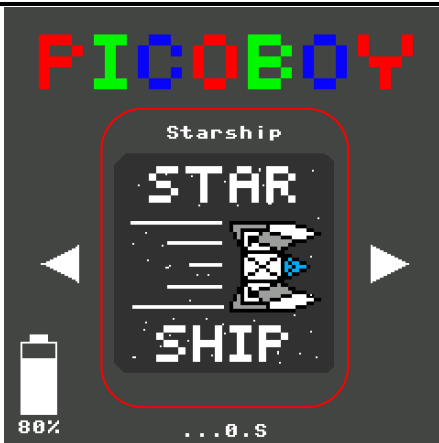
12. After finishing configuring your PicoBoy, you will see this screen. Once you press the home button, your PicoBoy will restart and boot into PBOS.



How to Navigate the Main Menu

When you power on your PicoBoy, you will be greeted by the home menu. The home menu displays the games currently on the console in alphabetical order.

You can see the game you have selected by the cover art and game title:



You can see the percentage of your battery here

You can see which game you have selected by the counter at the bottom:



Current game

Settings

Main Menu Button Assignments:

A - Start selected game

Start - Start selected game

Left - Move to the game on the left

Right - Move to the game on the right

Down+Select+B - Enter data transfer mode

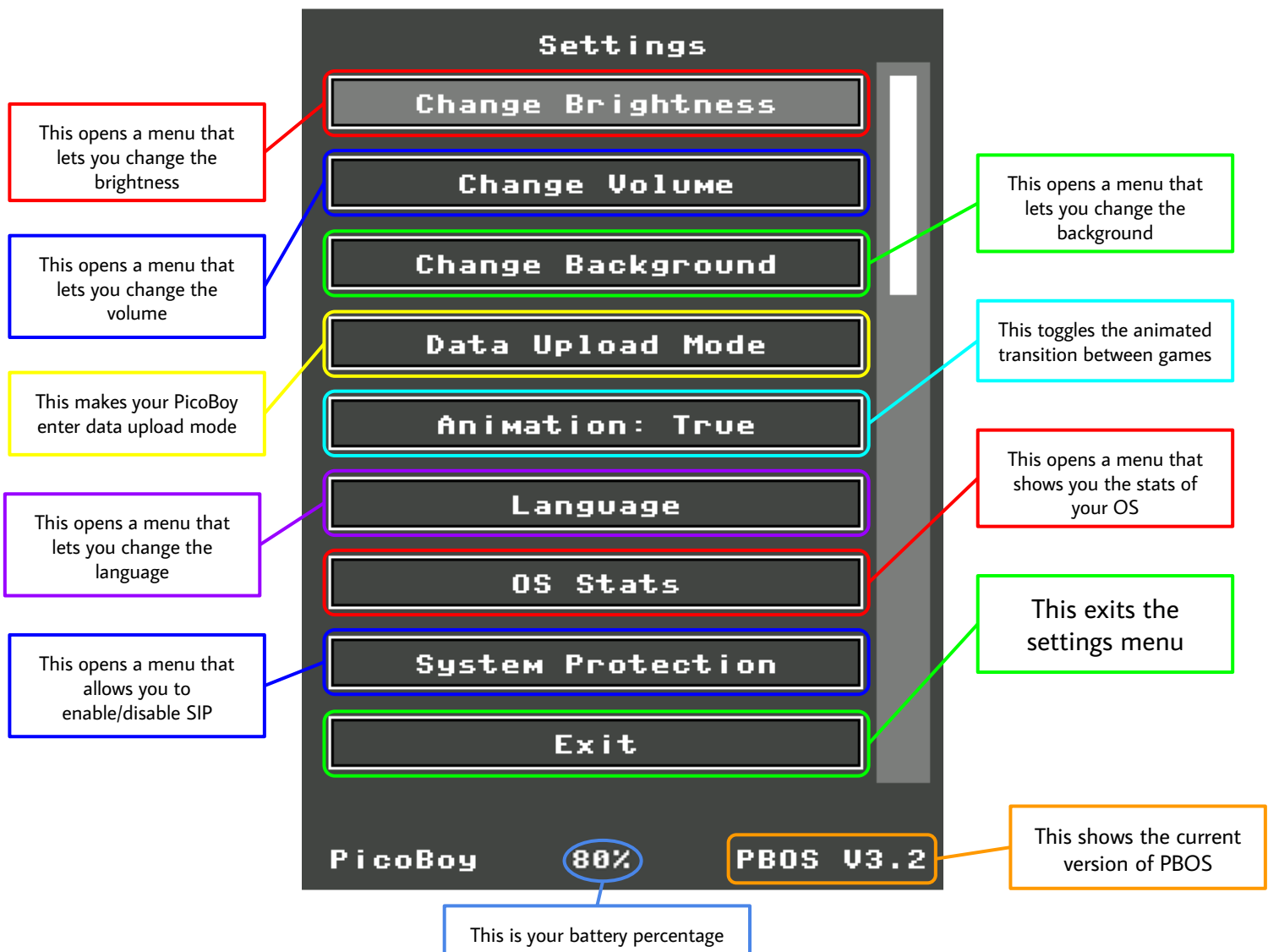
The Settings Menu

At the very end of the home screen is the settings menu. You can press A to enter the settings menu just as you would a regular game.



How to Navigate the Settings Menu

You can use the up and down buttons to choose an option. You can use the A button to select the option.



How to Navigate the Settings Menu

Backgrounds

When you open the backgrounds menu, you will have the choice of a custom drawing background or a solid color background. You can use the up and down buttons to navigate and the A button to choose an option.



If you choose solid color, you can navigate the different colors by using the left and right buttons. Use A or B to go back after selecting your color



If you choose drawing background, you can choose a background file from this menu. Press A to select a file or B to exit. You can use the left and right buttons to navigate pages and the up and down buttons to choose a file..



Note: If you choose a drawing background, it will not show in settings. You need to go to the home screen to see it.

How to Navigate the Settings Menu

Brightness

In addition to using Select+Up and Select+Down, you can change the brightness of the screen in the settings menu. You can use the Left and Right buttons to change the brightness and the A or B buttons to exit.



Volume

In addition to using Select+Left and Select+Right, you can change the volume of the speakers in the settings menu. You can use the Left and Right buttons to change the volume and the A or B buttons to exit.



The Language Menu

The language menu allows you to change the language of your PicoBoy. You can use the up and down buttons to select the language of your choosing and the A button to choose the language. The currently selected language is filled in.



The Stats Menu

The stats menu allows you to see information about your PicoBoy and PBOS. You can see the OS version, MicroPython version, the amount of storage free, the amount of games, the amount of libraries, and your battery percentage.



How to Navigate the Settings Menu

System Integrity Protection

System Integrity Protection (SIP) is the inbuilt protection in PBOS and PicoBoy Communication Software. It is designed to protect the core of PBOS from games that may corrupt the system. **It is highly advised that you do not disable SIP.** The only reason you would is if you want to run a game that does not use the PicoBoy SDK.

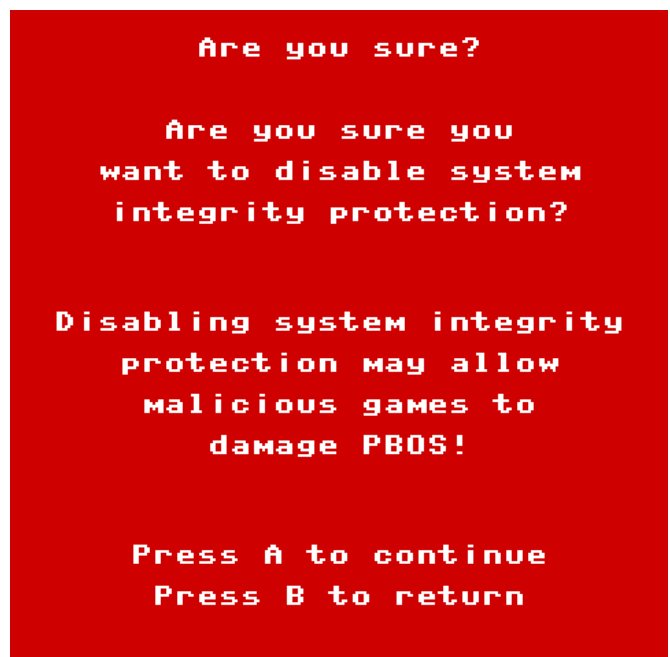


You can select either "Disable SIP" or "Enable SIP" to enable or disable SIP. You can select "Exit" to return to the main settings menu.

If you choose "Enable SIP", System Integrity Protection will be enabled. After this, your PicoBoy will be protected from corruption. Even with SIP, still be careful about the games you choose to run.

If you choose "Disable SIP", you will be asked if you are sure. If you want to disable SIP, click A.

SIP will be disabled and you will not be protected from corruption. Otherwise, click B to return.



File Type Cheat Sheet

.pbd - PicoBoy Drawing File: It is a file format that Paint uses. These files are also used as background files for the PBOS home screen

.pbg - PicoBoy Game File: A compiled PicoBoy game that can be added using PicoBoy Communication Software and played on the PicoBoy.

.pbu - PicoBoy Update File: A file containing all PBOS update files for use when updating your console using PicoBoy Communication Software.

.py - Python Script File: A code file that the PicoBoy can execute.

.pbimg - PicoBoy Image File: A proprietary image file type that the PicoBoy can read and display.

.sprt - PicoBoy Sprite File: A proprietary file containing sprite data that the PicoBoy can read and display.

How to Connect to The Console

1: Before you even open the PicoBoy Communication Software, you need to enter data transfer mode on your PicoBoy. You can do this by pressing Down+Select+B or navigating to settings and choosing "Data Upload Mode":

2: Once the console enters data upload mode, connect it to your computer. Open the PicoBoy Communication Software

4: After that, click "Connect", If you get an error saying "Port not found" or "Port busy or nonexistent", make sure no other programs are connected to your PicoBoy.

6: If the "Connect" button and status change to say "Disconnect" and the info panel fills with data, you did it! You can now interface with your PicoBoy.

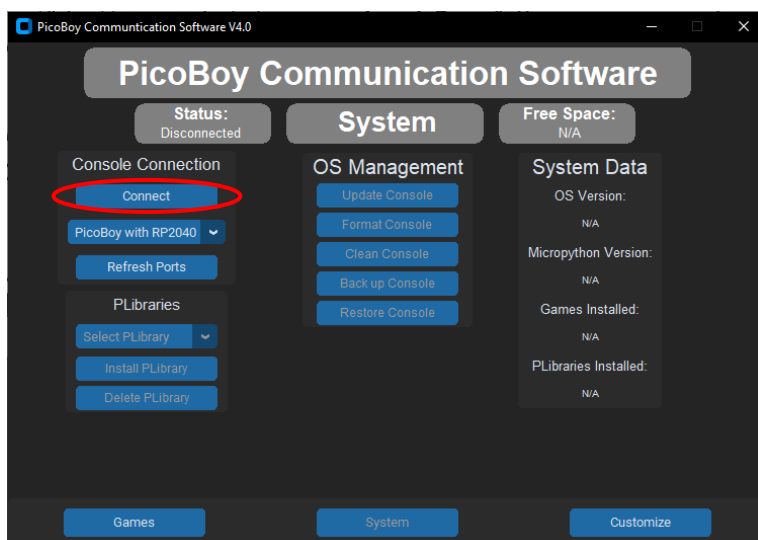
You can disconnect your PicoBoy by pressing "Disconnect"



If you are really having trouble, ask a question on the [discord](#).

3: Navigate to the "System" page and click the dropdown list labeled "Select Port", choose the option that says "PicoBoy with RP2040". If an option like that does not show up, try replugging your console, make sure its in Data Upload Mode, and click "Refresh Ports". If you see an option for "board in FS mode", update your firmware.

5: If the program returns a timeout error, you may be having connection issues. Unplug, replug, and try these steps again to remedy this.



IMPORTANT:

If you are using **V1 hardware**, Make sure to turn the power switch to off before plugging your PicoBoy into your computer! **Future hardware revisions will have protection against this.**

How to Update The Console

1: Before you update your PicoBoy, you need to connect to it. Refer to the section on connecting to your console to do this.

3: Navigate to the "System" page and click the "Update Console" button. If an error pops up saying "Port busy or nonexistent", check the connection to your PicoBoy.

5: Once you click "OK", a file window should appear. Select the update file you downloaded. Make sure that it is a ".pbu" file. If you get an error about reading the file, make sure you have selected a ".pbu" file and that it is not corrupted.

Do not interrupt your PicoBoy's updating, a failed update will corrupt the console.

If you are really having trouble, ask a question on the [discord](#).

2: Download the latest update from the GitHub [here](#). It will have the file extension ".pbu" This is the file that your PicoBoy will use to update.

4: When you click the button, an alert will appear warning you of disconnecting your console while it updates. Please keep in mind that your console may corrupt if interrupted. Click "OK".

6: A loading bar and file counter should appear. Wait for all of the files to upload. If it freezes for longer than 2 minutes or gives an error, refer to the section on formatting a PicoBoy.



Assuming all has gone well, your PicoBoy should have an updated operating system! You can verify this by checking the "System Data" window under "OS version."

How to Format the Console

WARNING: Formatting your PicoBoy will erase ALL DATA! Do not do this unless strictly necessary!

1: Before you format your PicoBoy, you must first connect to it. Refer to the section on connecting your console to do this.

3: If you get an error message saying "Port busy or nonexistent", try reconnecting your console.

Do not interrupt the formatting of your PicoBoy. If you do your console will be corrupted.

Assuming all has gone well, your PicoBoy should have a squeaky clean operating system!

If you are really having trouble, ask a question on the [discord](#).

2: Now that you are connected, navigate to the "System" page and click the "Format Console" button. Click "OK" to continue or "Cancel" to cancel.

4: After clicking the button, the software should pause for about 3 seconds. A loading bar should appear. Wait for all of the loading bars to complete.

5: If you receive an error or the loading bar freezes for longer than 2 minutes, retry these steps again..



How to Clean Your OS

This process is meant to clean up corrupted backgrounds and games that were interrupted while being added as well as any other random folders on your PicoBoy's filesystem. If you don't have enough space, it's a good idea to run this process to see if there's any data to be freed.

1: Before you clean your OS, you need to connect to it. Refer to the section on connecting to your console to do this.

3: A loading bar will appear and will fill up as the console is being cleaned.

5: After the loading bar fills up, you will get a notification informing you about how much data was cleaned.

If you are really having trouble, ask a question on the [discord](#).

2: Navigate to the "System" page and click "Clean Console".

4: If you get an error saying your console is already clean, there is no need to clean your console.

6: Your console should be all clean!



How to Back Up The Console

1: Before you update your PicoBoy, you need to connect to it. Refer to the section on connecting to your console to do this.

3: When you click the button, a box will appear asking you to continue. Click "OK".

5: A loading bar and file counter will appear. Once all of the files are downloaded, a box telling you where the backup was saved will pop up.

If you are really having trouble, ask a question on the [discord](#).

2: Navigate to the "System" page and click the "Back up Console" button. If an error pops up saying "Port busy or nonexistent", check the connection to your PicoBoy.

4: If your console disconnects while backing up, the backup file will automatically delete to ensure you don't get corrupted backups, your console will not suffer any data loss.

Assuming all has gone well, your PicoBoy should be fully backed up to your computer. If your console gets corrupted, you can restore the backup and have everything back.



How to Restore The Console

1: Before you update your PicoBoy, you need to connect to it. Refer to the section on connecting to your console to do this.

3: When you click the button, an alert will appear warning you of data deletion. Please keep in mind that your console will be erased and written over. Click "OK".

5: A loading bar and file counter should appear. Wait for all of the files to upload. If it freezes for longer than 2 minutes or gives an error, refer to the section on formatting a PicoBoy. The time it takes for everything to upload varies between backup sizes, but it should be between 1 and 5 minutes.

If you are really having trouble, ask a question on the [discord](#).

2: Navigate to the "System" page and click the "Update Console" button. If an error pops up saying "Port busy or nonexistent", check the connection to your PicoBoy.

4: Once you click "OK", a file window should appear. Select the backup file, make sure that it is a ".pbbk" file. If you get an error about reading the file, make sure you have selected a ".pbbk" file and that it is not corrupted.

Do not interrupt your PicoBoy's restoring, a failed restore will corrupt the console.



Assuming all has gone well, your PicoBoy should have all of the games, settings, and operating system it had when it was backed up.

How to Install a PLibrary to Your Console

1: Before you install a PLibrary to your PicoBoy, you need to connect to it. Refer to the section on connecting to your console to do this.

3: Once you click "Install PLibrary", a file window should appear. Select the game you wish to add. Make sure that it is a ".plib" file.

5: If the status bar freezes for longer than 30 seconds or an error pops up, disconnect the console, refer to the section on cleaning the OS, and try again. If it happens a second time, your game file may be corrupted.

7: If you get an error saying "An error has occurred while reading/writing data to the device", it means that you may have accidentally disconnected your console. After reconnecting, refer to the section on cleaning your OS.

If you are really having trouble, ask a question on the [discord](#).

2: Now that you are connected, navigate to the "System" page and click the "Install PLibrary" button. If an error pops up saying "Port busy or nonexistent", check the connection to your PicoBoy.

4: A loading bar and file counter should appear. Wait for all of the files to upload (about 30-60 seconds).

6: If you get an error saying "An error has occurred while reading file", it means the PLibrary you have selected may be corrupt or improperly formatted.

When the program says your game has uploaded, you did it! You now have a new PLibrary on your PicoBoy.



PicoBoy games are represented as a ".pbg" file.

How to Delete a PLibrary From The Console

1: Before you delete a PLibrary from your PicoBoy, you need to connect to it. Refer to the section on connecting to your console to do this.

3: If it says "No PLibraries" there are no PLibraries on your console.

5: Click "Delete PLibrary", a window should appear. To delete the PLibrary, click "OK". To cancel, click "Cancel"

7: If you get an error saying "Port busy or nonexistent", try reconnecting your PicoBoy.

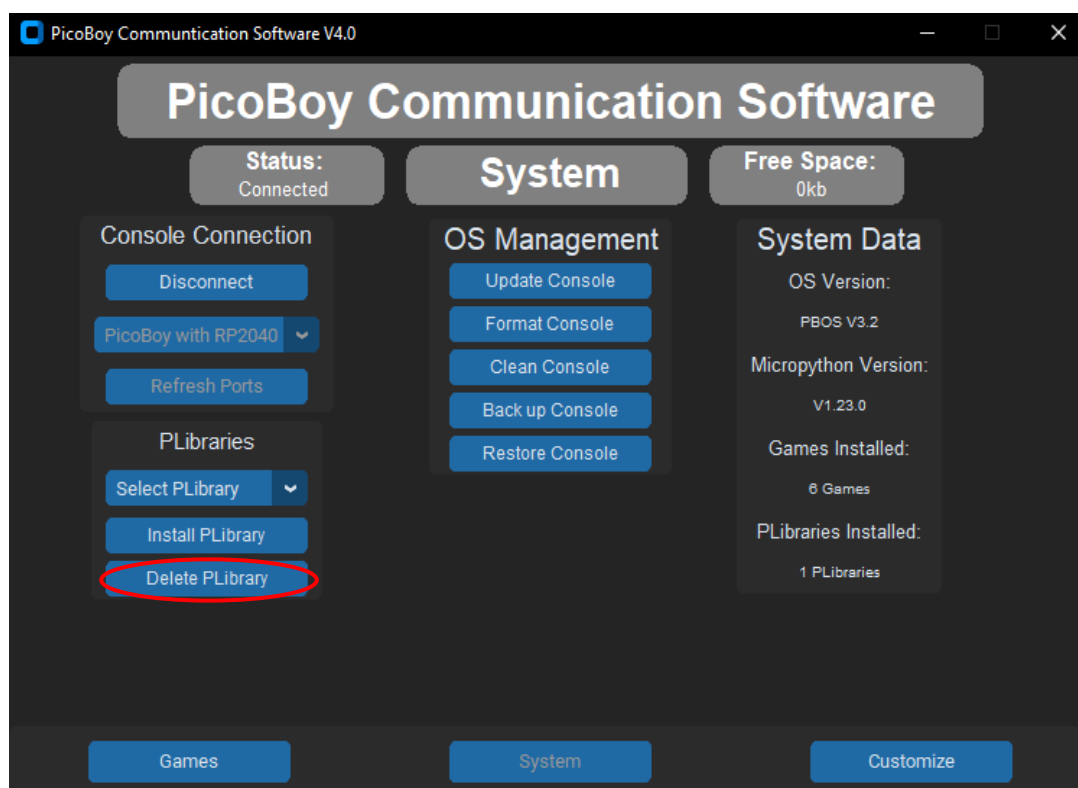
If you are really having trouble, ask a question on the [discord](#).

2: Now that you are connected, navigate to the "System" page and find the "PLibraries" menu.

4: Choose a PLibrary from that list by clicking it. (This doesn't delete the PLibrary immediately, it only selects it.)

6: After a short period of time, you should get a message saying "PLibrary successfully deleted from memory".

If all has gone well, the PLibrary you have selected has been deleted!



How to Add a Game to The Console

1: Before you add a game to your PicoBoy, you need to connect to it. Refer to the section on connecting to your console to do this.

3: Once you click "Add Game", a file window should appear. Select the game you wish to add. Make sure that it is a ".pbg" file.

5: If the status bar freezes for longer than 30 seconds or an error pops up, disconnect the console, refer to the section on cleaning the OS, and try again. If it happens a second time, your game file may be corrupted.

7: If you get an error saying "An error has occurred while reading/writing data to the device", it means that you may have accidentally disconnected your console. After reconnecting, refer to the section on cleaning your OS.

If you are really having trouble, ask a question on the [discord](#).

2: Now that you are connected, navigate to the "Games" page and click the "Add Game" button. If an error pops up saying "Port busy or nonexistent", check the connection to your PicoBoy.

4: A loading bar and file counter should appear. Wait for all of the files to upload (about 30-60 seconds).

6: If you get an error saying "An error has occurred while reading file", it means the game you have selected may be corrupt or improperly formatted.

When the program says your game has uploaded, you did it! You now have a new game on your PicoBoy.



PicoBoy games are represented as a ".pbg" file.

How to Update a Game

The games on your PicoBoy can be updated by using a .pbg file. All of your scores and other game-generated files should be safe from deletion.

1: Before you update a game on your PicoBoy, you need to connect to it. Refer to the section on connecting to your console to do this.

3: If it says "No Games" click "Refresh". If "No Games" still shows up, there are no games on your console.

5: Click "Update Game", a file window should appear. Select new the game file and click OK. Make sure that it is a ".pbg" file.

7: If you get an error saying "Port busy or nonexistent", try reconnecting your PicoBoy.

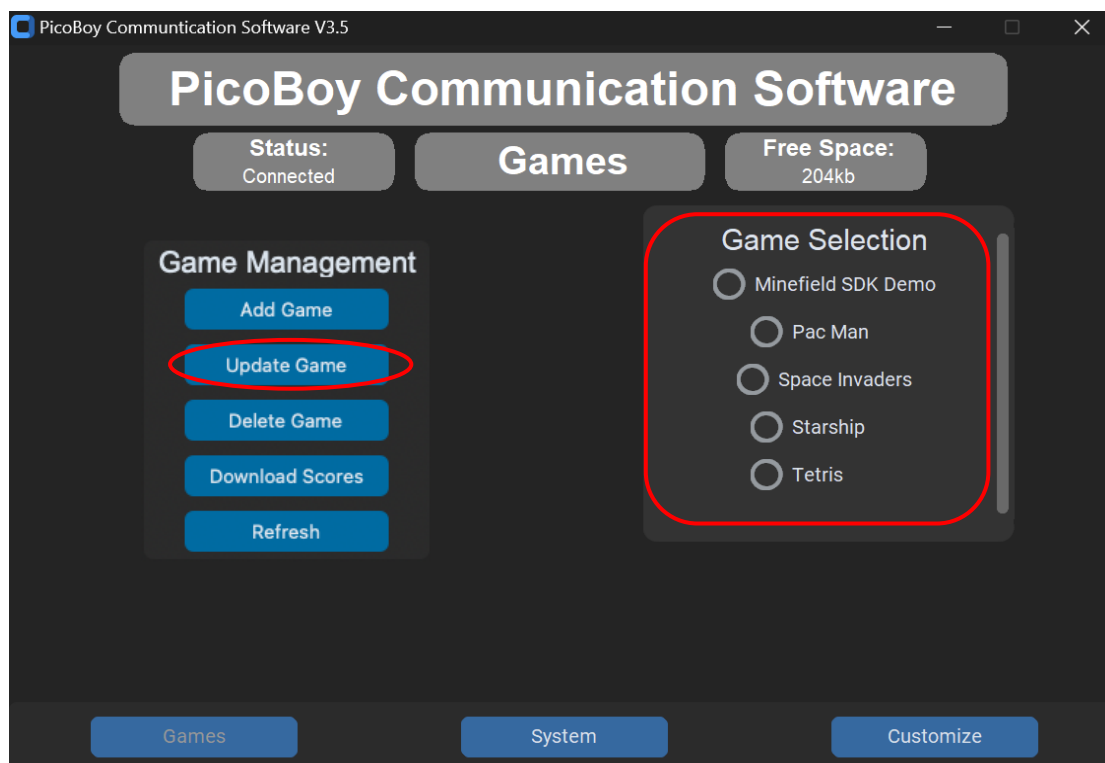
If you are really having trouble, ask a question on the [discord](#).

2: Now that you are connected, navigate to the "Games" page and find the "Game Selection" menu.

4: Choose a game from that list by clicking it.

6: A loading bar and file counter should appear. Wait for all of the files to upload (about 30-60 seconds).

If all has gone well, the game you have selected should be updated.



How to Delete a Game From The Console

1: Before you delete a game from your PicoBoy, you need to connect to it. Refer to the section on connecting to your console to do this.

3: If it says "No Games" click "Refresh". If "No Games" still shows up, there are no games on your console.

5: Click "Delete Game", a window should appear. To delete the game, click "OK". To cancel, click "Cancel"

7: If you get an error saying "Port busy or nonexistent", try reconnecting your PicoBoy.

If you are really having trouble, ask a question on the [discord](#).

2: Now that you are connected, navigate to the "Games" page and find the "Game Selection" menu.

4: Choose a game from that list by clicking it. (This doesn't delete the game immediately, it only selects it.)

6: After a short period of time, you should get a message saying "Game successfully deleted from memory".

If all has gone well, the game you have selected has been deleted!



How to Download a Game's Scores

1: Before you download scores from your PicoBoy, you need to connect to it. Refer to the section on connecting to your console to do this.

3: If it says "No Games" click "Refresh". If "No Games" still shows up, there are no games on your console.

5: Click "Download Scores". If you get an error message saying "Scores file nonexistent", it means the game you have selected has no scores.

7: If you get an error saying "Port busy or nonexistent", try reconnecting your PicoBoy.

If you are really having trouble, ask a question on the [discord](#).

2: Now that you are connected, navigate to the "Games" page and find the "Game Selection" menu.

4: Choose a game from that list by clicking it.

6: After a short period of time, you should get a message saying "Scores saved to current folder".

If all has gone well, you should have your high scores saved to your computer.



How to Add a Background

1: Before you add a background to your PicoBoy, you need to connect to it. Refer to the section on connecting to your console to do this.

3: Once you click "Add Background", a file window should appear. Select the game you wish to add. Make sure that it is a ".pbd" file.

5: If the status bar freezes for longer than 30 seconds or an error pops up, disconnect the console, refer to the section on cleaning the OS, and try again. If it happens a second time, your background file may be corrupted.

7: If you get an error saying "An error has occurred while reading/writing data to the device", it means that you may have accidentally disconnected your console. After reconnecting, refer to the section on cleaning your OS.

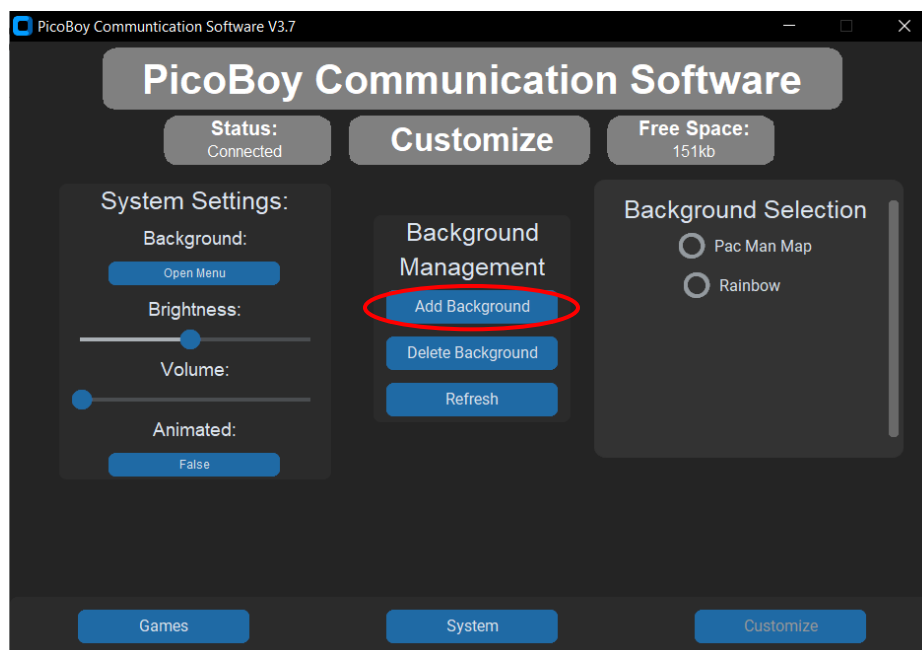
If you are really having trouble, ask a question on the [discord](#).

2: Now that you are connected, navigate to the "Customize" page and click the "Add Background" button. If an error pops up saying "Port busy or nonexistent", check the connection to your PicoBoy.

4: A loading bar should appear. Wait the file to upload (about 2-5 seconds).

6: If you get an error saying "An error has occurred while reading file", it means the file you selected is not formatted correctly.

When the program says your background has uploaded, you did it! You now have a new background on your PicoBoy. You can apply it by referring to the section on the backgrounds menu in settings.



PicoBoy games are represented as a ".pbd" file. You can get these files by drawing in Paint and downloading your drawing using PicoBoy Drawing Manager.

How to Delete a Background

1: Before you delete a background from your PicoBoy, you need to connect to it. Refer to the section on connecting to your console to do this.

3: If it says "No Backgrounds" click "Refresh". If "No Backgrounds" still shows up, there are no backgrounds on your console.

5: Click "Delete Background", a window should appear. To delete the background, click "OK". To cancel, click "Cancel"

7: If you get an error saying "Port busy or nonexistent", try reconnecting your PicoBoy.

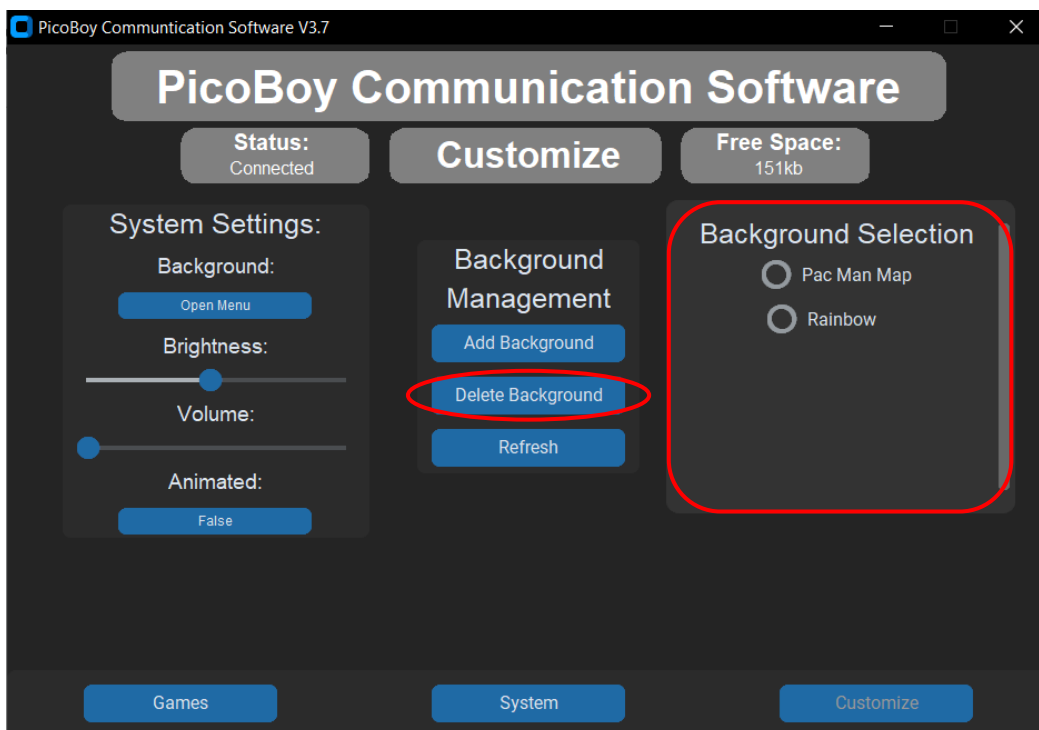
If you are really having trouble, ask a question on the [discord](#).

2: Now that you are connected, navigate to the "Customize" page and find the "Background Selection" menu.

4: Choose a background from that list by clicking it. (This doesn't delete the background immediately, it only selects it.)

6: After a short period of time, you should get a message saying "Background successfully deleted from memory".

If all has gone well, the background you have selected has been deleted!

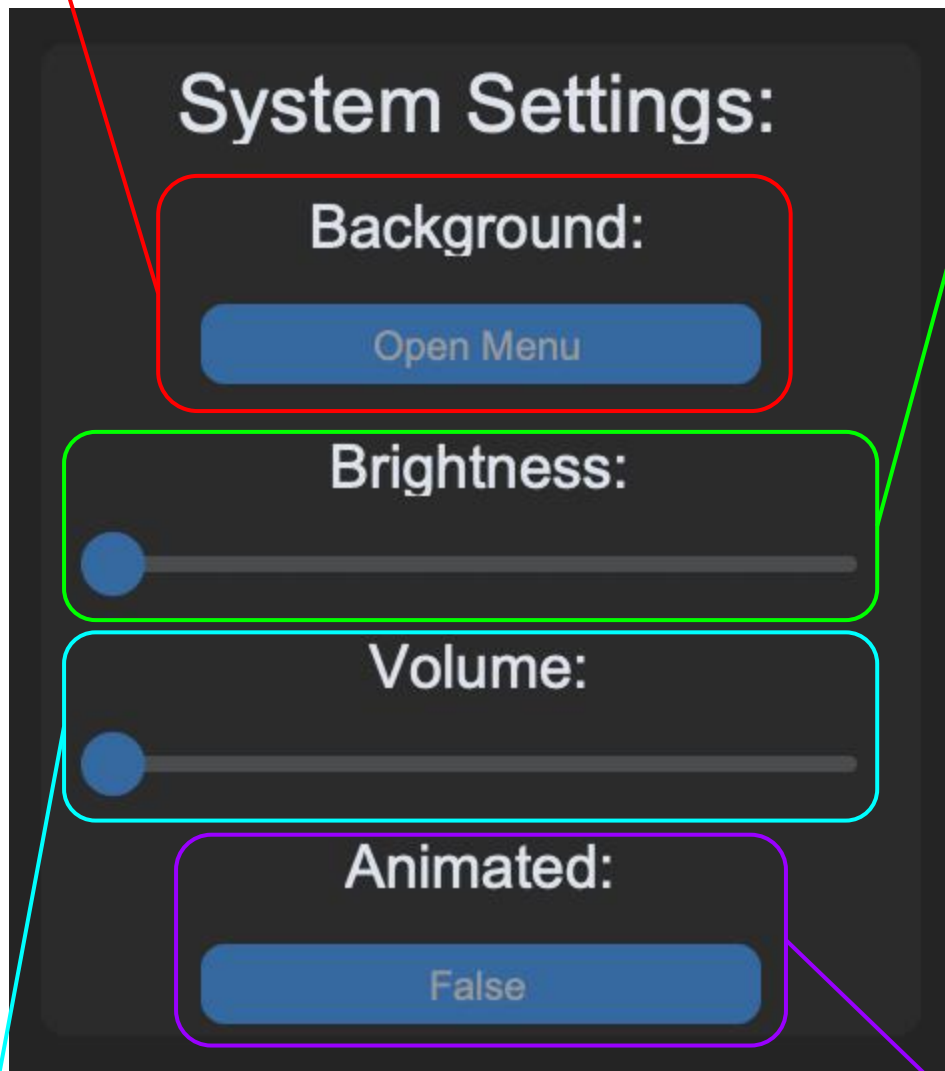


How to Modify System Settings

Before you modify the settings on your PicoBoy, you need to connect to it. Refer to the section on connecting to your console to do this.

Clicking this button will open a menu that you can see in the section on changing the console background

Sliding this slider will change the screen brightness



Sliding this slider will change the speaker volume

Clicking this button will toggle the animated transition between games

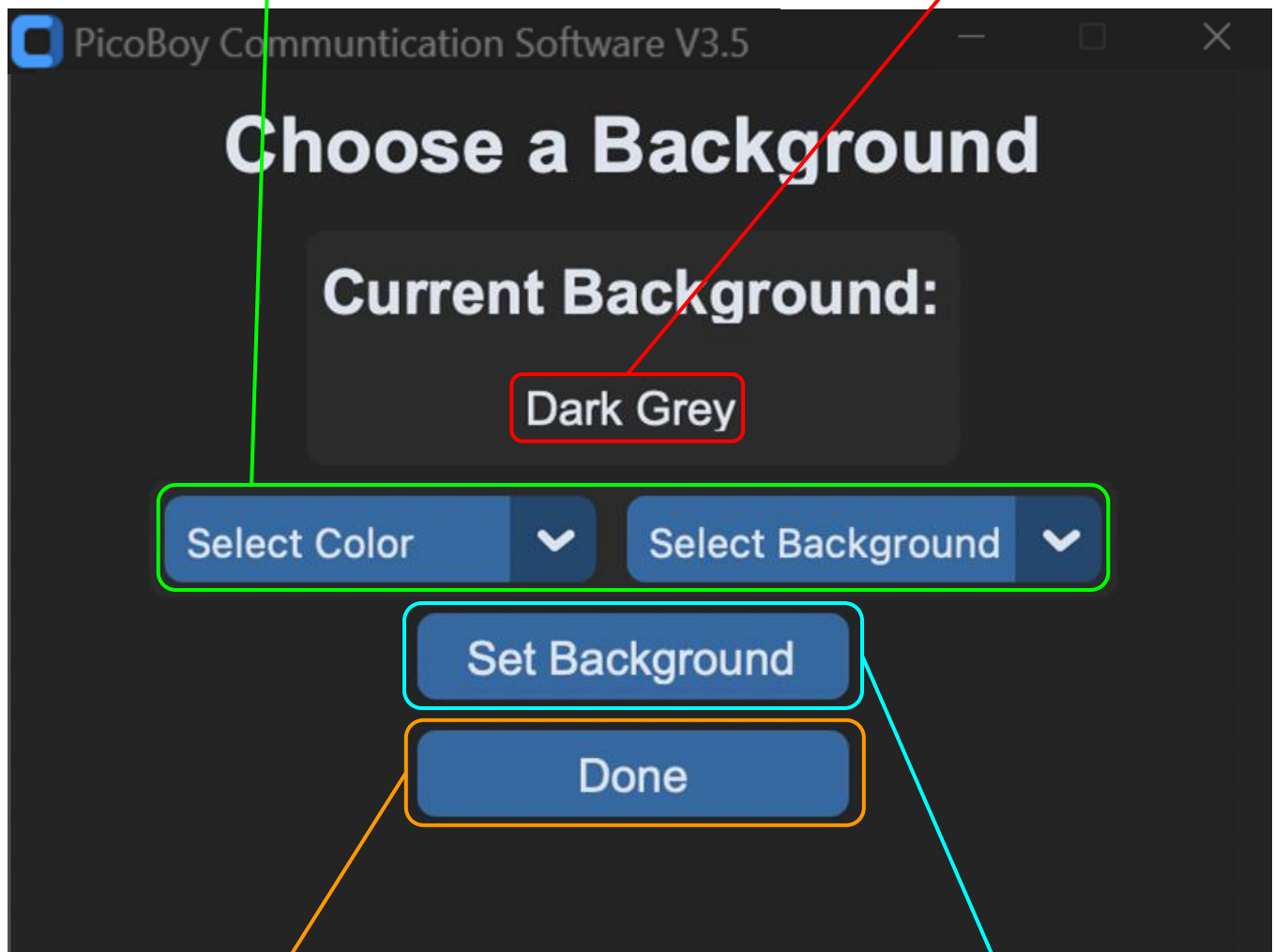
Changing the Console Background

Before you change the background on your PicoBoy, you need to connect to it. Refer to the section on connecting to your console to do this.

Note: When you open this menu, the main program will freeze. When you close this window, it will unfreeze.

These are two dropdown menus that you can use to select a background. You can choose a solid color or a drawing.

This is the current background



This button will close the menu and unfreeze the main program.

Click this button when you have selected a background. It will set the background you have selected.

How to Update the Firmware

A Firmware update may result in loss of functionality if a change has been made to how Micropython functions. Make sure to update your PicoBoy before your update to ensure everything works after the update.

1: Download the latest release of PicoBoy micropython from this [link](#). Look for "PicoBoy Micropython FW".

3: Drag the firmware file onto the USB drive, it will eject itself. Wait 5 seconds and do not unplug your PicoBoy.

5: If your PicoBoy shows a black screen when plugged in or a specific component doesn't work, refer to the section on updating your console. If you are still having issues, download an older version of Micropython and install it until your PicoBoy works.

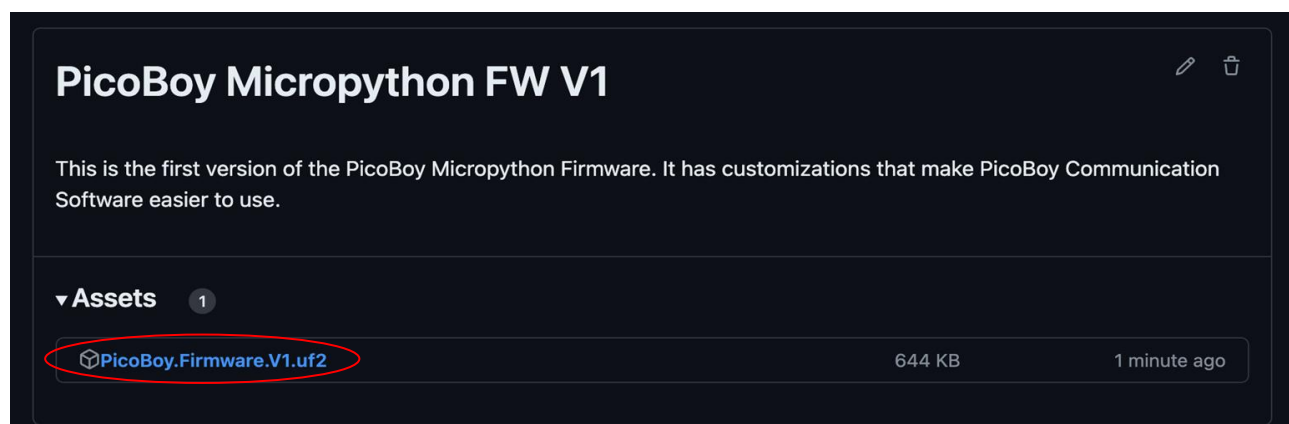
If you are really having trouble, ask a question on the [discord](#).

2: Plug the PicoBoy into your computer while holding the Pi Pico's "BOOTSEL" button. A USB drive will appear.

4: Plug your PicoBoy back into your computer. (Do not hold the "BOOTSEL" button this time)

6: If your PicoBoy boots up and everything works, you are free to unplug it from your computer

Assuming all has gone well, your PicoBoy should be updated and working!



How to Fix a Corrupted PicoBoy

**This section is only for those who have corrupted their PicoBoy.
Don't do this if you have not corrupted your PicoBoy.**

1: Download 2 files, the flash nuker and the latest micropython firmware from these links:

[Firmware](#)
[Flash Nuker](#)

3: Drag the flash nuker file onto the USB drive, it will eject itself. Wait 5 seconds and do not unplug your PicoBoy.

5: Drag the firmware file onto the USB drive, it will eject itself. Wait 5 seconds and do not unplug your PicoBoy.

7: Refer to the steps on formatting your PicoBoy to reformat the operating system.

If you are really having trouble, ask a question on the [discord](#).

2: Plug the PicoBoy into your computer while holding the Pi Pico's "BOOTSEL" button. A USB drive will appear.

4: Unplug the PicoBoy from your computer and plug it back in while holding the "BOOTSEL" button. A USB drive will appear.

6: Plug your PicoBoy back into your computer. (Do not hold the "BOOTSEL" button this time)

Assuming all has gone well, your PicoBoy should be reformatted and working!