



Twister OS

Version 1.2

Presented by Pi Labs

The best of Raspbian X Nighthawk Edition and iRaspbian, all in one place!

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INTRODUCTION

This release is built upon the latest Raspberry Pi OS version (May 2020)

Requirements:

- Raspberry Pi 4: 1, 2, 4, or 8 GB model
- A 16 GB or larger micro SD card
- 1080p capable display (recommended)
- Mouse and keyboard

A Raspberry Pi 3 will boot with Twister OS, but you may need to enable the OpenGL driver from `rpi-config` and remove PulseAudio if audio quality is bad. PulseAudio is used because it uses the best OSS wrapper for gaming, but using ALSA for audio control may be necessary on the Raspberry Pi 3 if audio quality suffers when the OpenGL driver is enabled. If needed, this can be accomplished by entering `sudo apt remove pulseaudio` in a terminal window.

The theme elements are composed from various themes and other projects on GitHub. Some of these elements have been modified to varying degrees, and some were created from scratch.

This is an updated release of Raspbian X Nighthawk Edition and iRaspbian.

The main motivation for this image is to have my favorite emulator, Box86, and RetroPie installed at the same time. Box86 may be integrated into RetroPie in the future, but who knows when or if that may happen?

There is no overclock enabled by default, but we recommend overclocking if you have sufficient cooling, especially overclocking the GPU. The version of RetroPie installed was designed for the Raspberry Pi 4. You will need to reinstall it if you want to use it with a Raspberry Pi 3.

FIRST STEPS

1. The default password for the pi and root accounts is `raspberrypi`. We strongly recommend changing both the user (pi) and root passwords.
 - The user (pi) password can be changed via the "Raspberry Pi Configuration" app, or by typing `passwd` in a terminal window.
 - The root password can be changed in the Terminal by entering `sudo passwd`. You can use the same password for both, if you wish.

1. Also, we suggest using the "Raspberry Pi Configuration" app (or go to the terminal and type `raspi-config`) to set your location, time, and wi-fi location.
2. Run `sudo apt update` in Terminal to update the software repository packages database, and check for available software updates. If updates are available, you can use `sudo apt upgrade` to install them and keep your Raspberry Pi OS up-to-date.
3. Since the May 2020 release of Raspberry Pi OS, the Raspberry Pi audio outputs (HDMI and 3.5mm audio jack) are now treated as separate hardware devices in the OS. Creative workarounds are no longer necessary to switch between audio outputs. To switch between them, left-click once on the "speaker" icon in the system tray, select "Audio mixer," and click the checkmark icon to the right of the output you wish to use; "Analog Output" for HDMI, or "Headphones" for the 3.5mm audio jack.
4. For the games included, set your display resolution to 720p or run them windowed.
5. To enable auto-login and eliminate the need to enter a password upon boot, use the "Raspberry Pi Configuration" app found in the application menu.

Note: The governor on the taskbar is just to show which CPU governor is currently in use. To change it, use the shortcuts found in the applications menu; type `performance` in the applications menu and it will appear. You can do the same for the `ondemand` and `powersave` modes.

"SWITCH 2 NIGHTHAWK" & "SWITCH 2 IRASPBIAN"

This is what gives "Twister OS" its name!

- The "Switch 2 Nighthawk" and "Switch 2 iRaspbian" apps allow you to quickly and easily change between the Raspbian X Nighthawk Edition and iRaspbian desktop theme styles.
- Change the look and feel of your Raspberry Pi as often as you like, and customize it to your taste!
- And if your tweaking gets out of hand, don't worry, you can always restore the original theme settings via the "Restore Twister Theme Config" app, found in the Settings menu.

LIGHTPAD

LightPad (formerly slingscold) is the main application launcher used in the iRaspbian theme. It can be launched by clicking on the "rocket" icon in the dock. If you are using the full Twister OS v1.2 operating system image (not a patched previous version), you can launch LightPad by simply pressing the "F4" key as well.

We would like to extend a big "thank you" to Juan Pablo for his previous work on slingscold, and especially for the custom development work that he did to develop LightPad for Twister OS.

Please support Juan Pablo's continued work by visiting his GitHub site: <https://github.com/libredeb/lightpad>

CHROMIUM MEDIA EDITION

Chromium Media Edition is included for playing DRM-enabled content from video streaming services (Netflix, Disney+, Hulu, etc.), however, be sure to use the normal Chromium Web Browser for regular web browsing, as it is more stable.

BOX86

Box86 is a Linux x86 emulator for armhf platforms developed by Ptitseb (and it's under heavy development). Box86 will allow you to run Linux x86 (not x86_64) games than use OpenGL 2.1 and below on your Pi4.

After refining support for Steam/Unity/Mono applications, Wine x86 is on the ToDo list for enabling the running of Windows x86 apps.

Additionally, Box86_64 is also planned for ARM64 (to emulate x86_64 apps).

It has its own dynarec (under heavy development), and provides i386 (AKA x86) library wrappers for native armhf use, boosting performance, and also making it easier to set up apps & games.

For many games you will need to set your desktop display resolution to 720p to get 60 fps (like the included games), but also remember to set the CPU governor to "performance" just to avoid unnecessary problems. Overclocking doesn't fix the need for resolution adjustments. The Raspberry Pi 4 GPU is just simply not that fast, but Mesa and Box86 development will improve this performance over time.

For some reasons related to the CPU governor, some lightweight games may require the use of the "performance" CPU governor, not because Box86 is demanding, but because the dynarec is working too hard on low end titles, and the pi4 "ondemand" CPU governor interprets that Box86 as a light task, and gives it background priority. This has an impact on gameplay and can be fixed by setting the CPU governor to "performance."

To set the CPU governor to "performance," use the shortcut found in the application menu (you can just type `performance`, `powersave`, or `ondemand` in the application menu search field, and click the desired option). Alternatively, you can disable the dynarec to wake the CPU on lower-end games by running `BOX86_DYNAREC=0 box86 <yourgame.x86>` in the game's folder.

For games that use S3TC texture compression, this feature is supported in the newer Mesa drivers included in /home/pi/mesa. These drivers are preloaded by default in Twister OS. Alternatively, gl4es can be used instead. If you wish to force the use of gl4es for a particular game, you can do so by adding the following text to the game's execution line: `LD_LIBRARY_PATH=/home/pi/gl4es box86 <yourgame.x86>`

You can measure the framerate of any OpenGL app using Mesa and/or Box86 by adding the following text to the game's execution line: `GALLIUM_HUD=simple,fps box86 <yourgame.x86>`

You can create silly scripts for that or edit the start.sh of your games and placing `export GALLIUM_HUD=simple,fps` anywhere before the execution game lines of the script. That way you can use the shortcuts on your desktop that GoG and Humble installers place out of the box with the environments you like.

"Update Box86" and "Restore Box86" application shortcuts have been included in order to avoid possible regressions of Box86 development that may impact the ability to enjoy your games normally.

Because it is under constant development, update Box86 regularly. You always have the option to restore your backup if a nuclear disaster happens with Box86 development!

STEAM

While Steam is included in Twister OS, it only shows your library in "small" or compact view.

A compatibility list is currently being developed/added to. The compatibility will improve over time, but remember, only for Linux x86 games, and even then, not all of them (very few right now). Try to install them on your Steam PC and then install them in Steam on your Pi (because then they will appear in your library when you use small view).

Steam is in a very experimental stage. The glibc error you will see is a silly one, and can be ignored. Additionally, Steam may not allow you to shut down. If this happens, do it manually. This is just for now! There will be a fix later in Box86!

RETROPIE

The only issue that's been identified with RetroPie is that the EmulationStation UI seems a bit slow (because it runs like that on x11), but the actual game emulation is fine, because RetroPie bypasses x11 when going in-game.

If you're trying to set something up on RetroPie and receive a permission warning (because we are running it as user), just open a terminal and execute it as root with `sudo emulationstation`.

The RetroPie setup scripts are located in: `/home/pi/.retroPie`

Remember, you can also use `ALT + F4` to quit any Box86 game, RetroPie game, or whatever.

KODI

If you wish to install Kodi on Twister OS, you will need to remove the pre-loading of the updated Mesa drivers before running it, as the newer drivers are not yet compatible with Kodi. To do this, open a terminal window and type `sudo mousepad /etc/environment`. In the text editor windows that opens, delete all of the text and then save the file. After rebooting, Kodi should operate normally.

If, after removing the pre-loading of the updated Mesa drivers, you wish to still use them for games, you can add the following text to the execution lines of your game to still take advantage of the updated Mesa drivers:

```
LD_LIBRARY_PATH=/home/pi/mesa/lib/arm-linux-gnueabi/f/
LIBGL_DRIVERS_PATH=/home/pi/mesa/lib/arm-linux-gnueabi/f/dri
GBM_DRIVERS_PATH=/home/pi/mesa/lib/arm-linux-gnueabi/f/ <yourgame>
```

ANDROID MIRRORING

In order to use Android Mirroring (My Android), You need to enable USB/ADB debugging on your phone and connect it to one of the USB 3.0 ports of the Raspberry Pi, then launch the "My Android" shortcut.

If your phone doesn't present a window prompting you to allow access, use the other USB 3.0 port and relaunch "My Android."

You can visit the [scrcpy GitHub page](#) for more information, but it should run. You can also check if the device is connected by typing `adb devices`.

You can play around with options and learn the shortcuts that scrcpy has by opening a terminal and entering `scrcpy --help`.

GLOBAL MENU

In response to numerous requests, a "global menu" feature has been added for the iRaspbian theme. This causes application menus to appear in the top panel, rather than in the application window. This can be disabled if you don't like it.

COMMANDERPI

CommanderPi is an application developed by Jack477 that allows you to easily view real-time performance information for your CPU and other hardware.

Additionally, it provides a very easy interface that can be used to overclock your Raspberry Pi, if you so desire.

FINAL WORDS

This was made just for fun and out of admiration for Box86, as well as to bring more users to ARM Linux.

The skin/theme is provided for aesthetic value only, and does not significantly impact the performance or usability of your Raspberry Pi. If you don't like it, you don't have to use it.

This project is not exclusively our work, as many of the theme elements are based on tons of other peoples' work on GitHub.

With open source love, Salvador and grayduck.