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rpi_new3ds_view Precautions and instruction manual
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 When using rpi_new3ds_view (hereinafter referred to as this software),
 You must read the text carefully and agree to its contents.

* * * We do not guarantee that it will work with all Raspberry pi individuals. * * *

For Raspberry Pi models 3B through 4B:
2020-02-13-raspbian-buster-lite with rpi_new3ds_view_ver 2.10.1. (Recommended by Katsukity)
2020-05-27-raspios-buster-lite-armhf with rpi_new3ds_view_ver 2.10.1. (Current Working Version)

For Raspberry Pi 3B models:
2018-11-13-raspbian-stretch with rpi_new3ds_view_ver 1.07 (if ver 2.10 is unstable).
2018-11-13-raspbian-stretch-lite with rpi_new3ds_view_ver 1.07 (if ver 2.10 is unstable).

For Raspberry Pi models 2B and lower:
2016-05-10-raspbian-jessie with rpi_new3ds_view_ver 1.00.
2016-05-10-raspbian-jessie-lite with rpi_new3ds_view_ver 1.00.

The old version of jessie can be downloaded from the raspberry pi official website:
(The 2016-05-10 version is under 2016-05-13.)
http://downloads.raspberrypi.org/raspbian_lite/images/

Most software versions can be found on the following websites:
https://www.raspberrypi.org/downloads/raspbian/
https://distrowatch.com/

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Installation procedure of rpi_new3ds_view
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<Working on windows>
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1: Download the desired version of Raspbian for your specific Raspberry Pi (listed above).

2: Transfer the Raspbian img file from Step 1 to a microSD card (4GB or more is recommended) using one of the following programs:

Raspberry Pi Imager https://www.raspberrypi.com/software/
Win32 Disk Imager https://osdn.jp/projects/sfnet_win32diskimager/

3: When the microSD becomes accessible from windows explorer, go to the root folder
Copy the rpi_new3ds_view folder together with the folder.

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<Working with raspberry pi>
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4: Insert the microSD card from (3) and start raspberry pi.
* Connect the new3DS capture kit and keyboard to the USB port.

5: Log in to the login screen with the following default user.

Username: pi
Password: raspberry

6: Execute the following commands.

sudo apt-get update --allow-releaseinfo-change
sudo apt-get install -y libdrm-dev libgbm-dev libgdm-dev libgles2-mesa libegl1-mesa-dev

7: Start the 3DS and Viewer Software.

Viewer Software can be downloaded here:
http://blog-non-standard.blogspot.com/

* Power on the 3DS before the Viewer Software! *

sudo /boot/rpi_new3ds_view_2101/rpi_new3ds_view.bin
-This starts the Viewer Software.

Success if the 3DS displays are mirrored to a TV or Monitor.

· Keyboard operation
.
[↓] Menu display and item selection
[→] Change the setting of the selected item
[ENTER] If you press the Save or Restart function when it is selected, that function will be executed.

.
[1] Switching between upper and lower screen display
[2] Screen rotation switching
[3] Dt By Dot / Full screen switching
[4] 30fps / 60fps limit switching
[5] fps screen display
[6] BILINEAR / NEAREST filter switching
.
.
· OSD button operation
.
[MENU] Menu display and item selection
[SELECT] Change the setting of the selected item
[ENTER] If you press the Save or Restart function when it is selected, that function will be executed.
.
The following shortcut functions can be used when the menu is hidden.
.
[SELECT] Vertical screen display switching
[ENTER] Screen rotation

-Start-up command line (provisional)

-Start in rgb16 RGB565 mode
-Start in rgb24 RGB888 mode (limited to 30fps)
-Start with 30fps limit
-Fullscrn Start in full screen state

-btntype2 Change the button pattern placed in GPIO of raspberry pi to type2.

Standard: MENU = 19, SELECT = 9, ENTER = 27, POWER = 3
type2: MENU = 19, SELECT = 6, ENTER = 9, POWER = 3

∗ This is the GPIO number, not the pin number of the pin header terminal.

-sndrate n Change the PCM sampling rate. (32400 ~ 49000)
If you enter a value of 32768Hz or higher, which is the default, it will be up-converted.

-sndpacketadj n
Fine-tune the PCM packet size (0 to 256).
∗ If the sound is noisy, add +4 values to see how it looks.
.
-sndbuffcnt n Change the number of blocks in the PCM buffer.
Can be changed to 4,8,16,32,64 (default value is 16).

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<Automatic startup>
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You can start the viewer app automatically after turning on the power of raspberry pi by following the steps below.

Edit the following two files with the text editor nano.
(Save with ctrl + O, exit with ctrl + X.)

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sudo nano / etc / inittab

1: 2345: respawn: / sbin / getty --noclear 38400 tty1
Look for the line called, and if you find it

1: 2345: respawn: / bin / login -f pi tty1 / dev / tty1 2> & 1
Rewrite to the content.

If not found, write a new line for the latter.
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---------- ----
sudo nano /etc/rc.local

In the second line of this file (the line after #! / Bin / sh -e)

sudo /boot/rpi_new3ds_view/rpi_new3ds_view.bin

Insert.
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<Reduce the startup time of raspberry pi>
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You can reduce the startup time of raspbian os a little by following the steps below.

· If the wired LAN cable is not connected, the startup time will be about 10 seconds longer.
Follow the procedure below to avoid waiting for a network connection.

sudo raspi-config

Select "4 Wait for Network at Boot" Return
Select "Fast Boot without waiting for network connection" and return
Finish with "Finish"

-Do not start services that are not related to the operation of the viewer software.
(Some services are not stopped due to the balance with other services.)

* 2020-05-27-raspios-buster-lite-armhf requires systemctl disable instead of chkconfig *
* sudo systemctl disable alsa-utils *
* sudo systemctl disable avahi-daemon *
* sudo systemctl disable dbus *
* sudo systemctl disable triggerhappy *
* sudo systemctl disable bluetooth *

sudo chkconfig alsa-utils off
sudo chkconfig avahi-daemon off
sudo chkconfig dbus off
sudo chkconfig triggerhappy off
sudo chkconfig netatalk off
sudo chkconfig plymouth off
sudo chkconfig dhcpcd off
sudo chkconfig bluetooth off
sudo chkconfig plymouth off
sudo chkconfig plymouth-log off
sudo chkconfig bootlogs off
sudo chkconfig hostname.sh off

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<Notes for each Raspberry pi model>
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· Raspberry pi 4B

· Use the HDMI port on the side closer to the Type-C port.
· In /boot/config.txt

[Pi4]
Dtoverlay = vc4-fkms-v3d
Max_framebuffers = 2

Make sure that the line in the part is not commented out.

· Since the performance of 4B has improved dramatically, it seems that the upper and lower screens can be displayed at 60 fps even in RGB888 mode.
(If you can't, try reducing unused services and hardware functions).

· For models that can use the 2016-05-10 version of Jessie Lite as the OS, install it.

Rpi_new3ds_view.bin -usb: 1024

Performance will improve if you start it with the argument "-usb: 1024".

· Raspberry pi 2B, 3B, 3B +

· When using Buster Lite as the OS, in /boot/config.txt

```
[All]
Dtoverlay = vc4-fkms-v3d
Max_framebuffers = 2
```

Make sure that the line in this part is not commented out.

· For 2B, it is recommended to use the old version ver1.00.

· Raspberry pi Zero / first generation

· Not supported.
Please use the old version ver1.10 or earlier.

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rpi_new3ds_view Restrictions
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Common subject matter
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Raspberry pi 2B or higher specs are required.
Compared to the windows version because it is operating at the limit

of the raspberry pi hardware
Function and stability are low.

The capture screen and sound may be disturbed while the OSD (setting menu) is displayed.

Connect the capture kit to the USB port before starting rpi_new3ds_view
 is needed.

When using the keyboard, it is also necessary to connect before starting.
Due to this nature, it is not compatible with Bluetooth keyboards.

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RGB: 888 mode
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While displaying both the upper and lower screens, it is always limited to 30fps.
The stability of voice capture will decrease.
When displaying FPS, the sound may be disturbed.

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Audio output function β
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Basically, it is recommended to operate from the analog output of the game machine itself.
(Because the so-called jitter cannot be completely removed)

Noise may occur due to the hardware configuration of the capture kit.
In games where the screen mode (2D / 3D) is often switched while playing BGM
It tends to be particularly noisy.

When using this function, it is recommended to operate with RGB: 565 and 30fps limit.

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License terms, etc.
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[Production / Writing]

The product key that came with the relevant hardware product is required to start up.
The product key is also written in the internal ROM of the main unit when the product is shipped,
It is required in case of failure or malfunction and when receiving user support.
Please be careful not to lose the form with the product key.

[Caution and disclaimer]

The author of this software will not suffer any damage as a result of using this software.
The author of the statically linked or dynamically linked library cannot take any responsibility.
Please use at your own risk.

This software temporarily displays the signal for the corresponding liquid crystal unit on the PC screen.
This software does not have the function to decrypt the video and the non-copy function.

The specifications of the electrical signals of the hardware to be operated are based on our own research.
Please do not contact the hardware manufacturer regarding this software.

[Transfer]

When transferring this software in the format already built into the raspberry pi body, the transferor
It is obligatory for the transferee to read the text carefully and decide whether to agree or disagree with the content.

This software uses Broadcom's library.
The following license terms apply.

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Change log
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ver2.101 Modify the library file

ver2.10 The following changes have been made to the sound output.
-Changed the PCM rate to 32769-49000Hz so that it can be up-converted.

-Added a function to fine-tune the buffer size.
・ Reduces noise caused by jitter

ver2.02 Changed the specification to up-convert the PCM rate of sound output to 48KHz.

ver2.01 Supports display of only the lower screen

Compatible with ver2.00 Raspberry PI 4 (Raspbian Buster).
Actually, after ver2.00, it will be exclusively for Raspberry PI 4.
It is recommended to use the model before that, ver 1.06 or earlier.

Ver1.06 Supports shutdown of raspberry pi by attaching a button to GPIO3.
Added "-btn type2" option to balance the placement with the above buttons.

ver1.05 raspbian-stretch cannot link to libGLSv2 by default, so Rebuild with libbcmGLSv2

USB performance readjustment
Set default packet size to 512 bytes
With raspberry pi 3B +, it seems that even 512 bytes size can be managed with CPU power

ver1.02-04 Private due to unstable operation

Ver1.01 2016-05-10-Correspondence to USB packet size problem that occurs after raspbian-jessie
By adding "-usb: 512", it can be started with subsequent raspbian, but the performance
Month drops

ver1.00 first public version

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