Setting up an On-Screen Keyboard on the Raspberry Pi

by Emmet Jan 04, 2020 Updated Mar 18, 2020 Guides

This guide will show you how to set up an on-screen keyboard for your Raspberry Pi.

An on-screen keyboard can be incredibly useful for your Raspberry Pi in a variety of different cases.

For example, if you are using your Raspberry Pi with a touchscreen display, using an on-screen keyboard is one of the best ways of adding keyboard input.

Additionally, if you are running a Pi that does not have a keyboard connected and only a mouse, then using an on-screen keyboard will allow you to type still.

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Equipment List

Here is a list of the equipment we recommend for this guide on setting up an on-screen keyboard on your Raspberry Pi.

Recommended

Raspberry Pi 1, 2, 3 or 4

Micro SD Card

Power Supply

Ethernet Cord or WiFi dongle (The Pi 3 and 4 has WiFi inbuilt)

Optional

Raspberry Pi Case

This guide was tested on a Raspberry Pi 4 running Raspbian Buster. This guide should work successfully on older versions of Raspbian as well.

Installing the On-Screen Keyboard Software to your Raspberry Pi

1. Before we can install the on-screen keyboard, we must first update our Raspberry Pi.

To upgrade the packages, we need to run the following two commands.

```
sudo apt update
sudo apt upgrade
```

Depending on how long it has been since you last updated, this process can take some time, so be patient.

On the Raspberry Pi

```
matchbox-keyboard
```

Over SSH

```
DISPLAY=:0 matchbox-keyboard &
```

This command will load up the on-screen keyboard software on your Raspberry Pi.

🪄 Adding a Virtual Keyboard Toggle to the Taskbar

This section of the guide will show you how you can modify Raspbian so that you can add a keyboard toggle to your taskbar.

We will be making it so that when you click this button, it will automatically open and close the on-screen keyboard software.

1. We will start by creating the bash script that will toggle the matchbox software.

Begin writing this script in the " `/usr/bin/` " folder by running the following command.

```
sudo nano /usr/bin/toggle-keyboard.sh
```

2. Within this file, enter the following lines of code.

```
#!/bin/bash
PID=`pidof matchbox-keyboard`
if [ ! -e $PID ]; then
  kill $PID
else
 matchbox-keyboard &
fi
```

This script is relatively straightforward. It first tries to grab the id of the virtual keyboard software and stores it in a bash variable called PID.

If it gets a process id, then the script will kill the currently running on-screen keyboard.

Otherwise, if there was no process id for the software, it will start it up by running the `matchbox-keyboard` command.

3. Once done, please save the file by pressing `CTRL` + `X`, then `Y`, followed by `ENTER`.

4. With our script created, we need to give everyone the execute privileges so that they can run it.

You can read more about permissions in linux with our file permissions in Linux guide.

To add the execute permission, run the following command.

```
sudo chmod +x /usr/bin/toggle-keyboard.sh
```

If you would like to learn more about this command, check out our basics of chmod guide.

5. Next, we need to create the file which the taskbar will read to load our toggle button.

Begin creating this file by using the command below.

```
sudo nano /usr/share/raspi-ui-overrides/applications/toggle-keyboard.desktop
```

6. Within this file, enter the following lines.

```
[Desktop Entry]
Name=Toggle Virtual Keyboard
Comment=Toggle Virtual Keyboard
Exec=/usr/bin/toggle-keyboard.sh
Type=Application
Icon=matchbox-keyboard.png
Categories=Panel;Utility;MB
X-MB-INPUT-MECHANISM=True
```

This text tells the operating system how it should display the entry, as well as telling it should execute the script we wrote when clicked.

7. Now, please save the file by pressing `CTRL` + `X`, then `Y`, followed by `ENTER`.

8. Next, we need to copy over the default configuration file over to our `pi` users config folder.

We will be modifying this file to add our on-screen keyboard button.

```
cp /etc/xdg/lxpanel/LXDE-pi/panels/panel /home/pi/.config/lxpanel/LXDE-pi/panels/panel
```

9. Finally, we need to modify the configuration for the `pi` user so that the icon is added to the taskbar.

Run the command below to begin modifying the panel configuration.

```
nano /home/pi/.config/lxpanel/LXDE-pi/panels/panel
```

10. To the bottom of this file, add the following text.

```
Plugin {
  type=launchbar
  Config {
    Button {
      id=toggle-keyboard.desktop
    }
  }
}
```

This bit of text creates an entry in the taskbar. It tells the taskbar to utilize the `toggle-keyboard.desktop` file we created earlier on in this section to display our toggle button.

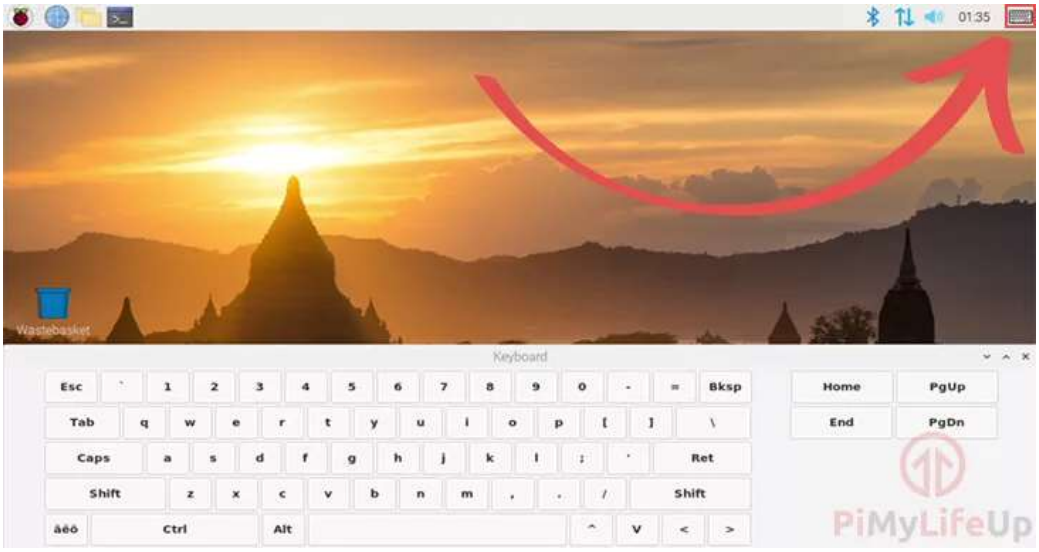
11. Once added, please save the file by pressing `CTRL` + `X`, then `Y`, followed by `ENTER`.

12. To show our new button in the taskbar, we need to restart our Raspberry Pi by running the following command.

```
sudo reboot
```

13. When your Raspberry Pi finishes rebooting, you should now see the keyboard icon in the top right-hand corner of the screen.

By clicking this icon, you can toggle the on-screen keyboard on your Raspberry Pi on and off.



Hopefully, at this stage, you have now successfully set up an on-screen keyboard on your Raspberry Pi.

If you have had any trouble with the virtual keyboard software, feel free to drop a comment below.

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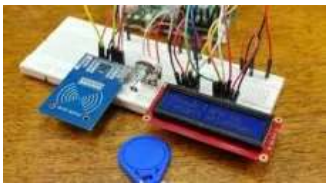

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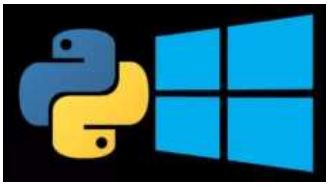

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11 Comments

Brian on March 17, 2020 at 6:48 am

Raspberry pi 4 2GB Running Buster

Keyboard icon doesn't show for me either. I have used File Manager to check and all the new files are where they should be, and those that should be executable are indeed.

Any pointers would be appreciated.

Reply

Emmet on March 17, 2020 at 11:59 am

Hi Brian,

Did you test the steps I posted below in reply to Angelo?

Cheers,
Emmet

Brian on March 17, 2020 at 11:49 pm

Thank you, this is now working fine. For the benefit of anyone else reading this post the thing to watch for is the response to:
nano /home/pi/.config/lxpanel/LXDE-pi/panels/panel

If nano reports that 'panel' is a new file (as it did originally for me) then this means that 'panel' must first be copied (using cp) from:
/etc/xdg/lxpanel/LXDE-pi/panels/

I believe it always helps to understand why things work, but for those who don't care then following your solution blind is the answer.

Thanks again

Brian on March 18, 2020 at 10:53 am

All now working fine. Many thanks for your help.

Angelo on March 15, 2020 at 10:46 pm

Hi,
thanks for your guide, unfortunately the button doesn't work also for me.
I have a new installation of Raspbian Buster (desktop version), but I don't have this path /home/pi/.config/lxpanel/LXDE-pi/panels/panel , but I suppose this /home/pi/.config/pcmanfm/LXDE-pi/desktop-items-0.conf , but if I add your plugin lines, I don't get the button.
The keyboard and the bash file work correctly
Thanks

Reply

Emmet on March 15, 2020 at 11:02 pm

Hi Angelo,

Out of interest could you try running the following command

```
cp /etc/xdg/lxpanel/LXDE-pi/panels/panel /home/pi/.config/lxpanel/LXDE-pi/panels/panel
```

Then modify the file again and try adding the configuration to the bottom again.

```
nano /home/pi/.config/lxpanel/LXDE-pi/panels/panel
```

Then again restarting the Raspberry Pi.

```
sudo reboot
```

Cheers,
Emmet

Angelo on May 9, 2020 at 7:17 pm

Thanks,
now work correctly, I have the keyboard button! ☺

Martin on March 10, 2020 at 8:28 pm

Hi that's a cool guide
Open the Keyboard manually worked fine.

But toggel button on toolbar don' work:
I use a raspi 4 and raspian on it, but i didn't have tha path
sudo nano /usr/share/raspi-ui-overrides/applications/toggle-keyboard.desktop

.desktop files are stored instead under /usr/share/applications
But after all reboot and stuff it doesn't work with the Toggle Ikon in the Toolbar

Reply

Emmet on March 13, 2020 at 9:55 am

Hi Martin,

I tested this tutorial again and everything is still working as intended.

May I ask what version of Raspbian you are running? I tested this running a clean copy of the latest version of Raspbian Buster.

Cheers,
Emmet

David on January 27, 2020 at 5:42 am

Hi Emmet,

Thanks for putting this out there. It works for me.

Just one little correction, You typo'd the word MECHANISM.

Reply

Gus on January 27, 2020 at 2:27 pm

Thank you for pointing that out! We have fixed the typo now.

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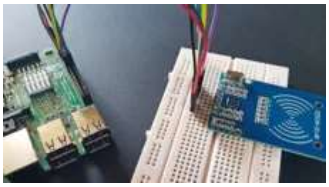

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2. Now that we have updated our Raspberry Pi, we can go ahead and install the software we want.

To install the virtual keyboard software, all we need to do is run the following command.

```
sudo apt install matchbox-keyboard
```

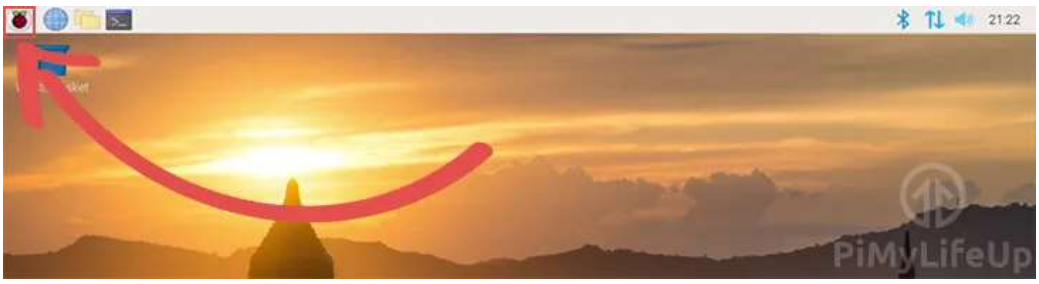
We chose to use the `matchbox-keyboard` package as its the most stable for the Raspberry Pi while also not chewing up to much of the Pi's limited resources.

Opening the Virtual Keyboard on the Raspberry Pi

In this section, we will be showing you how to open the on-screen keyboard using both the terminal and the desktop menu.

Using the Desktop to Open the On-Screen Keyboard

1. Once you are on the desktop of your Raspberry Pi, `click` the icon in the top-left hand corner of the screen.



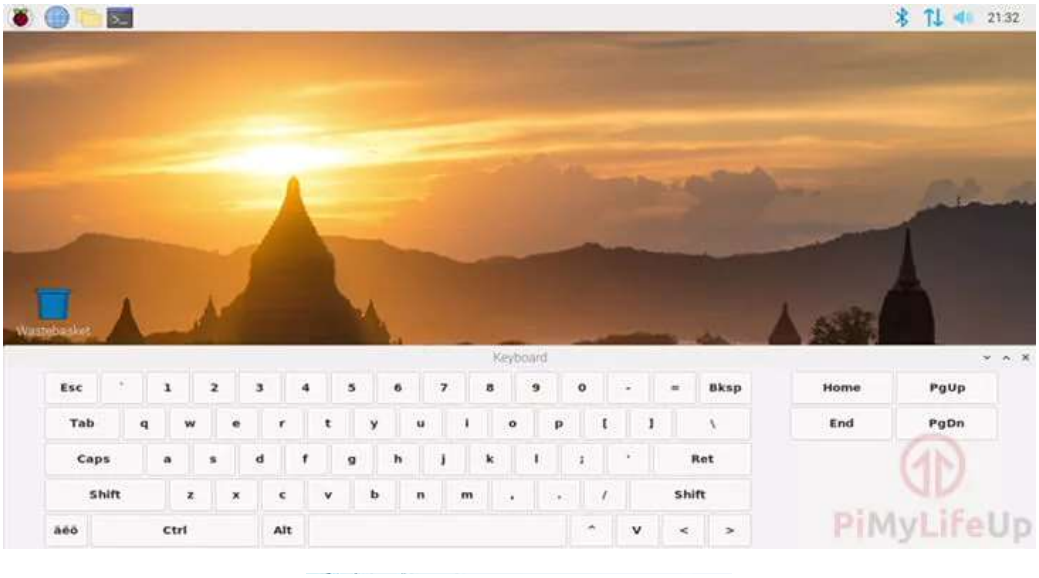
This icon will bring up the start menu for the operating system.

2. Next, `hover` over "**Accessories**" (**1.**), this will bring up an additional menu

Within this new menu, `click` "**Keyboard**" (**2.**) to launch the software.

3. The virtual keyboard should now be displayed on your Raspberry Pi's desktop.

You can `click` / `tap` the letters to type into any textbox.



Using the Terminal to Launch the Virtual Keyboard

If you can't find the keyboard option within the start menu, you can also use the terminal to launch the software.

It is also possible to complete this section using SSH if you have no keyboard to connect to the Pi itself.

1. Start by opening up a terminal session on your Raspberry Pi whether that be over SSH or on the Pi itself.

2. Now within this terminal session, run one of the following commands.

The command you need to use differs if you are using SSH or running it directly on your Pi.

The reason for this is that we need to specify the display we want the virtual keyboard to display on when using SSH.