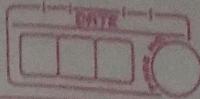


Experiment No: 2



Aim : Study of different operating system for Raspberry - Pi. understanding the process of OS installation on Raspberry - Pi.

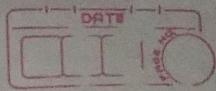
Theory

Introduction :

The Raspberry Pi is a wonderful but powerful little computer that fits the palm of your hand. Despite of its size it has enough power to run your operating system smoothly, home media center, a VPN and a lot more. The Raspberry Pi has a SD card slot for mass storage & will attempt a boot off that device from SD card when the board is powered on by 5V Micro USB supply.

The Raspberry is a very capable mini computer and moreover is very inexpensive, it is available at unbelievable price that you could not resist yourself to buy one, if you are technocrat. latest

Raspberry Pi i.e Pi 3 comes with case less computer with HDMI & analog composite video output. It comes with 4 USB port that makes it more user friendly & programmable to achieve specific goals. This Raspberry Pi has an integrated 802.11n wifi adaptor & blue tooth 4.1 wifi & blue tooth to make it more user friendly, you doesn't need TP link anymore to use wifi on this kit. It runs 5V micro USB supply - The Raspberry Pi 3B Model



Excellent processing speed provided by a powerful new 1.2GHz 64 bit Quad Core ARMv8 CPU with four ARM Cortex-A53 cores & 1GB of RAM. Many from the available list of operating systems, each one of them are segregated based on their applications, features & specifications.

Brief Discussion of operating systems.

No matter how good and powerful the hardware of the Raspberry Pi is, without an operating system it's just a piece of silicon, fiber-glass, & a few other semiconductor materials. There are several different operating systems.

1. Raspbian :

Currently, Raspbian is the most popular Linux-based operating system for the Raspberry Pi. Raspbian is an open source operating system based on Debian, which has been modified specifically for the Raspberry Pi. Raspbian is still under active development phase with an emphasis on improving the capability, stability & performance. Raspbian is designed to be easy to use & is the recommended operating system for beginners to start off with their Raspberry Pi.

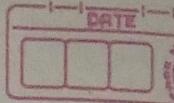
2. Pidora

After waiting for a long. Raspberry Pi users are finally getting an optimized version of fedora, the pidora, to replace the current Rasbian OS. The news caused excitement among the Raspberry Pi community, who are finally getting the opportunity to enjoy fedora on their devices after the previous attempt to introduce fedora minimal for Pi ended up as a failure. The current Rasbian OS, which was a remix of the open source Debian OS chip based on ARM v6 would make way for Pidora, currently available for download on the COOT website.

3. Arch Linux

Arch Linux is an excellent choice for many reasons. One of the greatest advantages of the Arch Linux distribution is its simplicity in approach & attitude. This gives you the ability to build your system from the ground up, including only the software you actually need. This minimizes the amount of space memory it takes to hold the operating system for your Raspberry Pi, leaving more space for everything else you'll be doing. On a cautionary note.

Arch moves forward as technology evolves & this can sometimes lead to documentation lagging behind. Arch has now finished its transition to system D from the old init scripts.

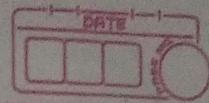


4. OSMC

OSMC (Open Source Media Center) is a free & open source media player based on Linux. Founded in 2014, OSMC lets you play back media from your local network attached storage & the internet. OSMC is the leading media center in terms of feature set & community & is based on the Kodi project. Although OSMC is derived from Linux, you don't need to have any experience with Linux to use it up & running in the way you want. Everything is easily managed through the OSMC interface. This OS comes with over 30,000 packages from the debain repository.

5 RetroPie

Retro Pie allows you to turn your Raspberry Pi into a retro-gaming machine. It's platform developed on the base of Raspbian, Emulation Station. Retro Pie enables you to play your favorite Arcade home-console & classic PC games with the minimum set-up. For technorat user, it also provides a lauge of variety of configuration tools to customize the system as per need & purpose. The OS is very useful emulation many games.

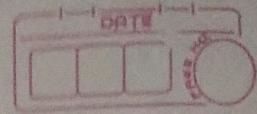


6. RISC OS:

RISC OS is a British operating system originally designed by Acorn Computers Ltd in Cambridge, England & was first released in 1987. It was specifically designed to run on the ARM chipset. It is fast, compact & efficient. RISC OS is not a version of Linux, nor is it in any way related to Windows & interestingly was developed by the original ARM team from RISC OS Pi comes with a set of utilities & API's. Although it's not a modern operating system it does have number of unique features & aspect to its design. It is available to download from RISC OS open website.

7. Firefox OS:

Firefox OS is an OS which is more associated with being a Linux kernel-based open-source operating system primarily designed for smart phones & tablets (laptops). It was primarily designed as a community based alternative system utilizing open standards & HTML 5 application, Java script & open web API's. It mainly competes with Android, Windows phones & Jolla Sailfish OS. Recently Mozilla on a Raspberry Pi. The device is affordable & flexible as it can run a number of operating systems & might therefore be a very suitable device to provide an entry level upgrade in network protection.

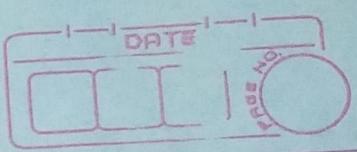


3. Kali Linux.

Kali Linux is a Debian-based security auditing Linux distribution. It is specially designed for digital forensics & penetration testing. It is maintained & funded by Offensive Security Ltd. Kali Linux provides many pre-installed packages with numerous penetration-testing programs like nmap, Wireshark etc. If you want to install Kali on the Raspberry Pi kit you can download it from their official download page, it is freely available there. Operating system have made the Raspberry Pi more popular & user friendly. We have gone through 8 different operating system. Each operating has its own features.

Conclusion:

Thus, we have studied installation for various OS in Raspberry.



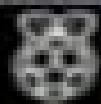
Installing OS for Raspberry - Pi 3

Aim/Objectives :

1. To understand the OS installation
for Raspberry - Pi 3.

Process of OS installation on Raspberry
Pi Board.

1. open the website : www.raspberrypi.org.
2. click on the "Downloads" tab.
- 3.

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DOWNLOADS

Raspbian is the Foundation's official supported Operating System. Download it here, or use [NOOBS](#), our easy installer for Raspbian and more.

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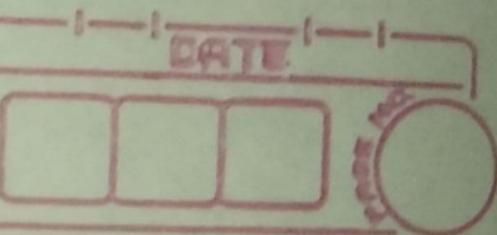
5. we require "RASBIAN STRETCH WITH DESKTOP". so under this heading, click on "Download Torrent" option.

6. A "Torrent file" is downloaded.

7. But the actual os is present in the ZIP file of this torrent.

8. So using this "torrent file" & the "Bit Torrent" software, we download the ZIP file of the Raspbian os.

9. So download the "BitTorrent" software & install it.



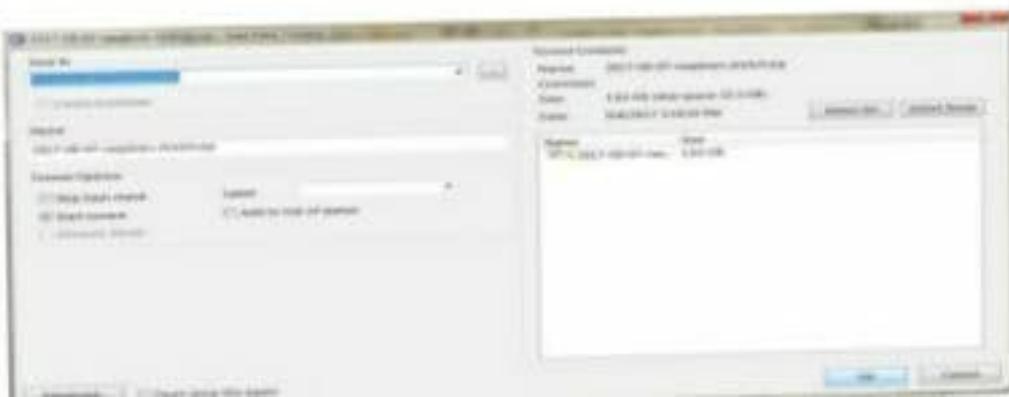
10. Now open the "Bit Torrent" software
11. click on the option "+" 4 under this
click on "Add torrent".



12. Here select the path of downloaded "Torrent file".



13. After selecting the torrent file, following window appears. Here click on OK.



After completion of this process, we get the zip file named as "raspbian-stretch.zip".

- Now we have to unzip the file to get the actual disk image of the OS.
- As the ZIP archive of the OS is more than 4GB we require special software name "7zip" to unzip the file. So download the software & install it.

14. Using the 7zip software, unzip of the file. After this we get the required disk image of the Raspbian OS.

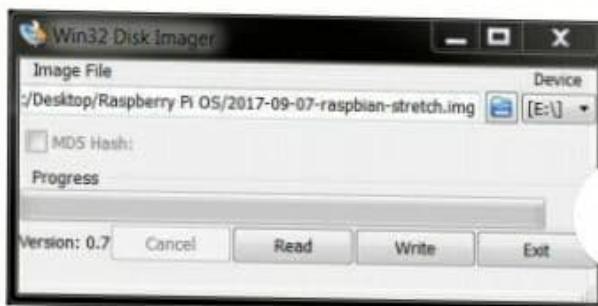
15. Now we have to write the disk image on SD Card.

16. To write OS on SD Card, we require the software "win32 disk images". So download this software & install it.

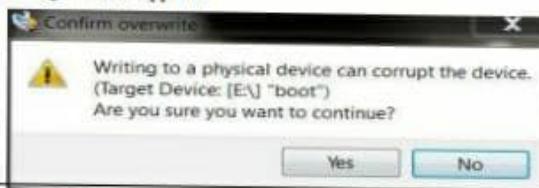
17. After completion of the installation, the following window appears.



18. Open the unzipped file in the "Image file" option by selecting the path from the Blue icon. The selected path is shown in the below image.
19. Now plug-in the SD card reader having SD card inside it, in the USB port of your PC.
20. Ensure that your SD card reader is having the same drive which is shown in the Device option (near the blue icon)



21. After ensuring that the "Image file path" and the "Device" are selected correctly, now click 'Write' button to write the image on the SD card.
22. After this the following window appears.



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23. Here click 'Yes' and Confirm the overwrite
24. Image file will be written on SD card.
25. After the procedure is completed, it gives "Write Successful" message.
26. Congratulations! Your SD card is ready with your OS to work in the Raspberry-Pi-3 board.
27. Insert this SD card in Raspberry pi3.



28. Do the necessary connections and make the power ON. Your Raspberry-Pi starts and the desktop of the OS is shown on the screen. Now Raspberry-Pi is ready to work on.