

# Raspberry PI 4 as NAS

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**Abstract:** *With the growing use of computers in our daily lives, the craze of wireless domains and cloud storage is growing daily, with this project on LIVE NAS SERVER WITH RASPBERRY PI, the idea is to use Raspberry Pi as a low cost. NAS Server, which can be used to access Network Storage seamlessly on the LAN Network and to achieve this with low cost and low data consumption. This project gives us flexibility, to use Network Storage without the mess of any wired devices and eases team work. The growing demand in the market for increased storage capacity is mainly because of our dependency on the network. Network attached storage (NAS) provides the dedicated file server to manage all kinds of files. It is an independent storage device which is connected directly to the network. Due to its availability on the network. It can easily accessed by any number of heterogeneous clients. The NAS system easy to use and configured and it also of added security features and web server capabilities.*

**Keywords:** Network Attached Storage

## I. INTRODUCTION

Software program/package deal that can provide us cloud storage via our NAS (used for this venture) and samba software mounted, within the UNIX OS a NAS or network attached storage, is the pleasant way to maintain your facts backed up and circulation and get right of entry to content material from all of the devices linked to the community. But a NAS is in reality a laptop that is connected to the network and computers can draw a big amount of modern-day, in particular as its miles powered on all of the time. Or community attached garage, is the pleasant manner to maintain your statistics backed up and circulate and get entry to content material from all the devices linked to the community. But a NAS is surely a computer that is related to the community and computers can draw a big amount of modern, particularly as its miles powered on all the time.

A NAS — network connected garage, is a storage tool connected to a network that allows storage and retrieval of facts from a important location for accepted community customers. A NAS is essentially like having a non-public cloud at domestic, and permits you to proportion files effortlessly among different users of your community. The raspberry pi 4 is one of the maximum famous prototyping forums inside the world. It is basically a credit score card sized laptop, able to run LINUX that still has: USB three. Zero & 2. 0, Bluetooth, HDMI output, audio, ethernet and WIFI capability.

## II. DESCRIBING THE PROJECT AND ITS COMPONENTS

In this project we are using Raspberry pi 4 as NAS network. The working of this project is we are building our own personal network to store our data. To avoid the damages like hacking, Information loss because generally we store our information to external cloud .So we do not know where exactly our data is stored. So by using this project avoid such problems. In this IP address of mobile is connected to IP address of Raspberry pi. After successful interconnection raspberry pi and the devices we can store our data and also we can retrieve data.

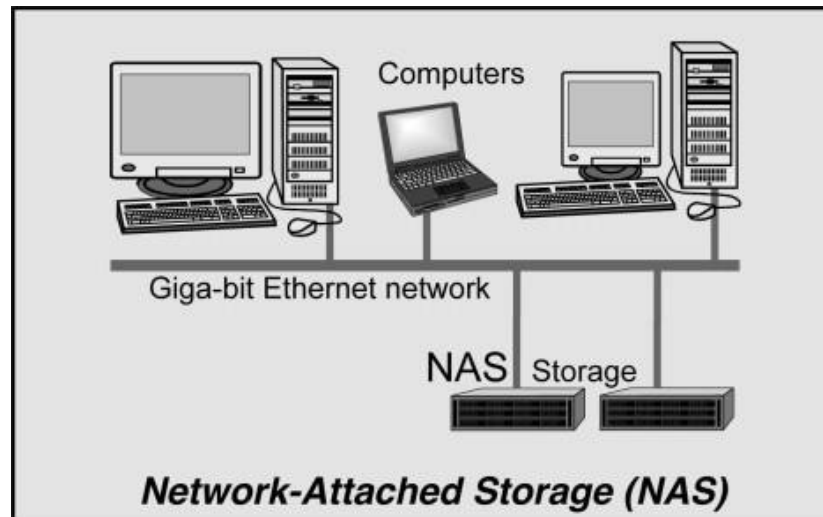
The raspberry pi board contains a program memory (RAM), processor and snap shots chip, CPU, GPU, ethernet port, GPIO pins, XBEE socket, UART, energy source connector. And various interfaces for different external devices. It also calls for mass garage, for that we use an SD flash memory card. In order that raspberry pi bord will boot from this SD card similarly as a computer boots up into windows from its tough disk. Vital hardware specs of raspberry pi board mainly consist of SD card containing LINUX OS, us keyboard, monitor, strength deliver and video cable. Non-obligatory hardware specs encompass USB mouse, powered USB hub, case, net connection, the version a or b: USB WIFI adaptor is used and internet connection is to model B LAN cable.

NAS (community-attached storage) server is a statistics storage server laptop, which presents get entry to its records to a group of customers inside the network, thru hardware, software, or configuration. This task of live NAS server the use

of raspberry pi, acts as a server for cloud records storage the raspberry pi board accommodates a software reminiscence (RAM), processor and portraits chip, CPU.

### III. DESCRIBING ABOUT THE NETWORK ATTACHED STORAGE (NAS)

Network-connected garage (NAS) lets in you to keep documents out of your laptop and cellular gadgets to outside tough drives thru your own home or workplace wi-fi network. Using Raspberry Pi, you may join your present garage gadgets — consisting of outside transportable tough drives and USB flash drives — to create steady backups of all of your critical documents, handy from everywhere withinside the world.



Network-connected garage (NAS) is devoted record garage that permits more than one customer and heterogeneous patron gadgets to retrieve records from centralized disk capacity. Users on a neighborhood vicinity network (LAN) get right of entry to the shared garbage through a preferred Ethernet connection.

### IV. HOW TO SET UP RASPBERRY PI AS NAS?

If you've got the specified hardware to your personal NAS server, you may dedicate yourself to putting in and putting in place the software program required to function it.

**Step 1:** download and install Open Media Vault

Like with Raspbian or other Raspberry Pi versions, you need an external computer to download and install Open Media Vault. On this page, you can access the official Source Forge directory for the open source software, which contains the corresponding image file for the Raspberry Pi models 2 and 3. Download the file, which is just over 300 megabytes in size, and write it into a microSD card using imaging software like Etcher.

**Step 2:** start the Raspberry Pi NAS and change the keyboard layout

In most cases, it is necessary to connect the monitor and keyboard to the Raspberry Pi to proceed further. Once you have done this, start the boot and installation process using the microSD card, until you can log into the NAS program through the shell for the first time.

**Step 3:** Change password and show IP address

After switching to the perfect keyboard language, it's time to assign a brand new root password for shell get right of entry to on your Raspberry Pi NAS to save you unauthorized customers from logging in the use of the acquainted default password.

**Step 4:** Logging onto the internet interface

After you've got laid the muse for the use of the Raspberry Pi as NAS server withinside the preceding steps, you could now go online to the internet the front stop wherein the real configuration takes place. To do this, you turn from the Raspberry Pi to every other laptop this is handiest at the equal community and need to have a popular Internet browser. Start the browser and input the IP cope with that your router has assigned to the Raspberry Pi NAS into the cope with line. There is likewise a predefined default login for the NAS distribution.

**Step 5:** Securing the internet interface

Since you are making all of the crucial settings to your Raspberry Pi NAS server via the internet interface, it makes feel to stable the relationship as very well as possible.

**Step 6:** Connecting the storage media to the Raspberry Pi NAS

For the NAS server to work as a central file storage location, the respective storage media needs to be connected to the Raspberry Pi and configured to the web interface.

**Step 7:** Putting in document sharing at the protected partitions

To permit customers to shop documents at the linked information garage gadgets later, proportion the corresponding folders under “Access Control”. To do this, click on at the submenu item “Shared Folder” and then “Add”. Start with the person directory (additionally referred to as the “home” directory), that you want to assign the route homes/ for. With all different folders, however, you could permit your creativeness run wild in regards to call and route.

**Step 8:** Creating user profiles to access to Raspberry Pi NAS Server

Once you've got brought garage ability to the Raspberry Pi NAS and dependent it accordingly, the following step is to create a person profile. You can do that withinside the “User” phase of the menu (or through “Access Control”). Click on the “Add” alternative and sort withinside the corresponding person data (call and password). Move the slider throughout under “Change Access” in case you need to permit a person to regulate their login information. Then open the evaluation of shared folders again, pick out the folders which are applicable for get admission to, and assign the corresponding rights.

**Step 9:** Setting up access services for the Raspberry Pi NAS Server

Finally, it is important to clarify how users can exchange data with the NAS server. **SSH** (secure shell) is **enabled by default**, but can only be used by Linux users (through the terminal) without needing additional software. Windows users need **client applications** such as PuTTY for data transfer through the network protocol.

**Step 10:** Accessing the Raspberry Pi NAS

Finally we access the NAS with raspberry pi.



**REFERENCES**

- [1]. “Live NAS Server with Raspberry Pi”, by Lakshay Chawla ,International Journal of Scientific & Engineering Research Volume 12, Issue 7, July-2021 ISSN 2229-5518
- [2]. Home server and NAS using raspberry Pi” ,by Amit Rakesh Shrivastav and Jayant Gadge , 2017 International Conference on Advances in Computing, Communications and Informatics (ICACCI) .