## How to build a Raspberry Pi 4 NAS Server? – Samba and OMV

<https://www.seeedstudio.com/blog/2019/12/24/how-to-build-a-raspberry-pi-4-nas-server-samba-and-omv/>

NAS which stands for network-attached storage, allows you to store things like your movies, videos, pictures, etc on portable hard drives and external storage devices via your network.

**How do you do build a Raspberry Pi NAS?**

Today, we are going to explore 2 solutions on how to build a Raspberry Pi NAS Server:

* Building a Raspberry Pi 4 NAS with **Samba**
* Building a Raspberry Pi 4 NAS with **OMV (OpenMediaVault)**

### **Step by Step Instructions**

**Step 1: Update your system**

* Firstly, you should already have a fully operating Raspbian system. If not, you will need to download[Raspbian Buster Lite](https://www.raspberrypi.org/downloads/raspbian/) and follow the [instructions](https://www.raspberrypi.org/documentation/installation/installing-images/README.md) to set up your operating system
* If you have a running Raspbian system already, you will have to first make sure your system is up to date.
* You can update the package list and all your packages by running this two commands:

sudo apt-get update  
sudo apt-get upgrade

**Step 2: Install Samba on our Raspberry Pi**

* After your Raspbian operating system is up to date, now we will have to install the Samba software on the Raspberry Pi.
* To install the Samba packages, key in the following command:

sudo apt-get install samba samba-common-bin

sudo systemctl status smbd -> check if Samba services are running

**Step 3: Creating a sharing folder**

* Now, we will have to create a place where you can store and share all of your stuff
* This folder can be located anywhere, it is completely up to you. It can even on a mounted external hard drive.
* For this tutorial, we will be creating a public and private folder that will be accessible on the NAS:

Sudo mkdir /home/pi/shared

**Step 4: Sharing folder using Samba**

* Next, we will be sharing the above folder using Samba. To do this, you will have to modify the Samba configuration file.
* Key in the following command to edit the file:

sudo vim /etc/samba/smb.conf

* In addition, just below the authentication section of the file, paste this following line:

security = user

**Step 5: Define Details of share**

* Within this file, add the following to the bottom. This text defines various details of share.

[seeedstudioshare]

path = /home/pi/shared

writeable=Yes

create mask=0777

directory mask=0777

public=no

**[seeedstudioshare]:**This defines the address and other configurations related to the shared folders. For example, the shared folder will be abe the following address: **\\raspberrypi\seeedstudioshare**. You can rename it to whatever you like to call your shared storage space as well.

**path:** This option contains the address of the directory that is going to be shared. If you wish to store the shared folder on an external drive, just change to path option here to point it towards your external drive.

**writeable:**With this option set to yes, the folder will be writable.

**create mask** & **directory mask:**This option defines the maximum permissions for both files and folder. By setting it to 0777, it allows users to read, write and execute.

**public:** This option is used to give permission to either give any user access to the folder or restricted access. With the option set to “no”, the Raspberry Pi needs a valid user to grant access to shared folders.

**Step 6: Make a user for Samba on the Raspberry Pi**

* Next, we will make a user for our Samba server on the Raspberry Pi in order for us to make a connection to the shared network drive.
* We will run a command to create a Samba user called “Pi”:

sudo smbpasswd -a pi

* After running this command, you will be prompted to set a password that is up to you.
* With this user “Pi” you can access the Samba share from Windows, macOS, or other Raspberry Pi devices with the ability to read and write files.
* If you wish to create additional users, key in the following commands:

sudo adduser username

sudo smbpasswd -a username

* Replace “username” with your choice of username.

**Step 7: Retrieve Raspberry Pi local IP address**

* Lastly, we will have to retrieve our Raspberry Pi’s local IP address when connecting to Samba.
* This is in the event the connection fails on your home network where we can still use the IP address to connect to the Samba Share
* For this, make sure that you are connected to a network by either an ethernet cable or Wifi.
* Key in the following command to get your Pi local IP address:

hostname -I

**And we are done! now we will just have to connect the Network attached storage on Windows or Mac OS.**

### **Connecting Samba Server on Windows**

Now we will connect your Samba server on Windows.

**Step 1: Go to Map Network Drive**

* To access files and folders on Windows system, we have to put the address of the shared media. You can do this by going My Computer and click Map Network Drive as shown below:

