# Networked Attached Storage - Overview

Building NAS on Raspberry Pi is a very smart way to create DIY NAS for safe and efficient file management. NAS (or Network Attached Storage) Server is a network storage system to serve and share files to other client computers in a local network area. This enables multiple users to access and share the same file storage.

The NAS server can use different file sharing protocols to share the data via the network. The mainly used protocol is SMB (Server Message Block).  Additional protocols are NFS (Network File System), FTP (File Transfer Protocol), SFTP (Secure File Transfer Protocol), SCP (Secure Copy) and more.

The main hardware components of the NAS storage system are the media storage devices, mainly hard drives. If you have more than one storage device mounted on your NAS server, the storage devices can be arranged via a RAID controller (Redundant Array of Independent Disks) into logical and redundant storage containers for redundancy and safety reason. There are various RAID levels to protect the data in case of a disk failure. The most common are RAID-0, RAID-1 and RAID-5.

## Advantages of building NAS on Raspberry Pi

Raspberry Pi is a mini computer build on a single PCB board, slightly larger than a credit card. It has a wired local area network (LAN) and 4 USB-Ports for different external devices like keyboard and mouse or external storage devices.
The optimized operating system for the Raspberry PI 3 is Raspbian, a free and open source software based on Debian called "Raspbian Stretch", released 08/16/2017.

RPI is a mini-computer with the full performance of a Linux-based operating system and contains almost all functions of a large server system.  The Pi is small, economical and uses very little energy.  It can also be used for an almost unlimited number of projects, like running Plex media server, playing retro games with a game emulator built on the Pi and much more.  All of these features make the Raspberry Pi an ideal candidate for your own small NAS storage system.