NAS Using an External Drive

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This example uses an external USB HDD with an NTFS file system configured with one partition. Once the drive is attached enter ***lsblk*** to see the connected devices. Locate the attached device and identify its name (example: ***sda***). In this example, you should see a partition named ***sda1*** using the NTFS file system.

1. To obtain the software we will use to control the external drive:

   sudo apt-get install ntfs-3g

2. Create a folder for access by other machines (example: DISK1):

   sudo mkdir -m 1777 DISK1

3. From the command line, execute ***df -h***. See if the usb drive is listed (in newer models of the Rpi, Raspbian will probably recognize and mount the external drive automatically to a directory it creates). If you find this has occurred, unmount the drive:

   sudo umount /dev/sda1 (or whatever device name was assigned)

   When complete, mount the drive to the new directory:

   sudo mount /dev/sda1 DISK1

4. To this point, we have manually connected the disk drive to the desired directory. When the system is restarted, the drive will no longer be associated with the directory we created. For this connection to be reinstated automatically, we must modify the ***/etc/fstab*** file as follows:

   a. ***sudo nano*** (or leafpad or some other editor) ***/etc/fstab***
   b. Add a line: ***/dev/sda1 /DISK1 ntfs-3g defaults 0 2***
   c. Save the file, exit the editor and restart the system

5. Enter ***df -h*** to ensure the external disk was mounted automatically.

6. Create a test directory and file on the disk.

7. To share the external disk with the network, install samba. Samba is the Linux implementation of the SMB/CIFS file sharing standard used by Windows PCs and Apple computers, and widely supported by media streamers, games consoles and mobile apps.

   sudo apt-get update
   sudo apt-get upgrade
   sudo apt-get install samba samba-common-bin
   sudo mkdir -m 1777 /disk1 (create the shared directory)

8. To share the external disk with the network, enter ***sudo nano /etc/samba/smb.conf*** and add the following lines:

   [DISK1]
   comment = external Files

browseable = yes
path = /DISK1
writeable = Yes
only guest = no
create mask = 0777
directory mask = 0777
public = yes
guest ok = yes

9. Set a Samba password:

   sudo smbpasswd -a pi

10. Restart the Samba server: ***sudo /etc/init.d/samba restart***

11. To mount a share from the command line on another Rpi:

    sudo mkdir /rpi02share
    sudo chown 777 /rpi02share
    sudo mount -t cifs -o username=pi,password=rpi02PWD //192.168.10.12/disk1 /rpi02share

    If your password or username contains special characters try simplifying them.

    Another alternative:
    sudo mount -t cifs -o username=USERNAME,password=PASSWORD '\\192.168.2.12\TestShare' /mnt/share

    Quoting the '\'s prevents their recognition by the shell as special characters. The CIFS mount handler can then get that argument in one piece from the command line. That handler can then understand the slash swapping needed for Microsoft products that use '/' as a command line argument introducer.

12. To test access to the drive from Windows, open ***File Explorer*** and select ***Computer***, ***Map Network Drive*** and:
    a. Enter the Rpi IP-address and the share name “disk1” as \\xxx.xxx.xxx.xxx\disk1
    b. Check the Reconnect at sign-in and Connect using different credentials if show.
    c. If required, enter the ***smbpasswd*** created earlier for the share.

13. From a Windows machine, create a new directory and either move/create a file within it. If this process works, the share is functioning properly.

Find your Pi on the network

You’ll now be able to find your Raspberry Pi file server (named RASPBERRYPI by default) from any device on your local network. If you’ve left smb.conf’s default settings as they are, it will appear in a Windows network workgroup called WORKGROUP.

From <https://www.raspberrypi.org/magpi/samba-file-server/