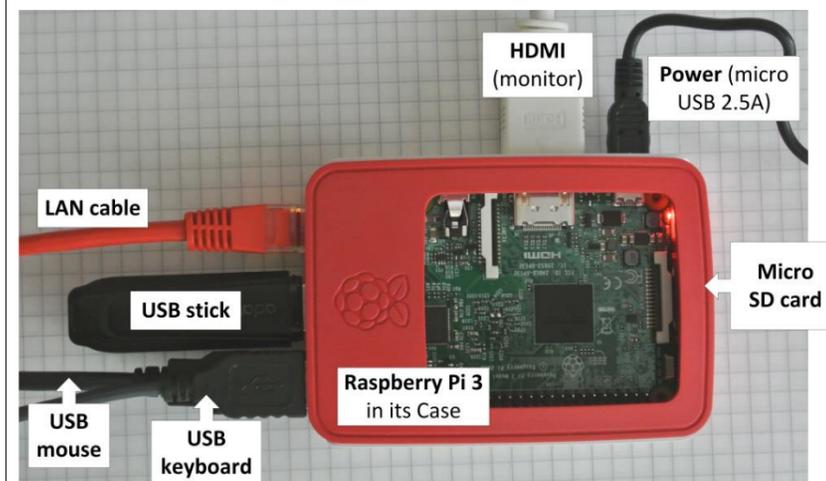


Raspberry Pi 3: Samba file server using a USB stick

This is what you need:

Raspberry Pi 3	8GB micro SD-card + adapter	2.5A micro USB power supply
Monitor with HDMI connection	USB keyboard	USB mouse
HDMI-cable (male-male)	A network cable for connecting Raspberry Pi 3 to your router	
An Internet connection with static ip-address		



A. Set up your Raspberry Pi 3

There is a wealth of information on the Internet. A good place to start is www.raspberrypi.org. Follow these points:

1. Download NOOBS from <https://www.raspberrypi.org/downloads/> to your computer and unzip the file to an empty folder
2. Insert the micro SD card in your computer (put the card in an adapter first). The SD card must be FAT32 formatted. (Check with Windows Explorer). If necessary, format the SD card.
3. Copy the unzipped NOOBS files from your computer to the SD card.
4. Better safe than sorry: now is the time to learn how to back-up your SD card. Google 'backup SD card', download program and follow instructions. (A good example of software is Win32DiskManager.)
5. Connect all peripherals, EXCEPT the POWER, see figure 1
6. Connect the power
7. In a few seconds you will see the Raspberry Pi desktop

B. Set up your router

Usually computers, printers, etc, on a Local Area Network (LAN) are given ip-addresses by the router dynamically. We will change this for the Raspberry and give it a static ip-address.

1. Log on to your router
2. Under *device info*, or similar, you will see your Raspberry Pi as *raspberrypi*
3. Check your router's manual for how to make a *DHCP reservation*. For my D-Link DIR-655 I find this on my router at *Network settings, set up, DHCP reservations*.
4. Pick a free ip-address from the range that your router use and reserve that ip-address for your *raspberrypi*. From now on that is the ip-address for *raspberrypi* on your LAN. Verify by looking at device info, status. You should see *raspberrypi* there with the ip-address you gave it.
5. Make a note of the ip-address since you may want to use that later for connecting to the *raspberrypi* from other computers on your LAN.
6. You will want Internet conversations to go directly to your server only. Therefore set up *port forwarding*. I find this at *port forwarding, advanced*. Tick the box, fill in program name, ip, and set ports open to 80,443.

C. Prepare the USB stick & create directory "shares"

Before we start, let's give the USB stick a short name, I used USBFD2 (for USB Flash Disk 2. I use USBFD1 for Apache2 webserver).

1. Connect the USB stick to your windows computer
2. In windows explorer right-click the USB stick and rename it to your taste
3. Reconnect the USB stick to Raspberry Pi

In case you will use a NTFS-formatted disk, add support to Raspbian for NTFS-formatted disks, by typing:

```
sudo apt-get install ntfs-3g
```

Before we can mount the drive, we need to create a directory to mount the drives to. For the sake of simplicity we're going to simply make a directory called USBstk2. At the command line enter:

```
sudo mkdir /media/USBstk2
```

To mount the drive, enter the following command:

```
sudo mount -t auto /dev/sdb1 /media/USBstk2
```

The USB stick is now mounted to the USBstk2 directory.

D. Install Samba

Now we will install Samba so we can access the storage from elsewhere on the network. At the command line enter:

```
sudo apt-get install samba samba-common-bin
```

When prompted to continue type Y and enter. When Samba has finished installing, make a backup copy of the Samba configuration file in case we need to revert to it:

```
sudo cp /etc/samba/smb.conf /etc/samba/smb.conf.old
```

Now we will edit the Samba config file, by aid of the nano text editor:

```
sudo nano /etc/samba/smb.conf
```

Scroll down to the very bottom of the file and enter the following text:

```
[Hugin]
comment = Backup Folder
path = /media/USBstk2
valid users = @users
force group = users
create mask = 0660
directory mask = 0771
read only = no
```

Note: If you want a name other than "Hugin" then type that within the brackets in the top line. When finished, press CTRL+X, Y to exit and save. Restart Samba:

```
sudo /etc/init.d/samba restart
```

Make an account with the username and the password of your liking. I used username hugin. Type:

```
sudo useradd hugin -m -G users
```

```
sudo passwd hugin
```

You'll be prompted to type in the password twice to confirm. After confirming the password, add "hugin" as a legitimate Samba user:

```
sudo smbpasswd -a hugin
```

Enter the password for the Hugin account when prompted. Check that it works from a windows computer on your network (in explorer under Network.)

When prompted, enter the credentials you created in the previous step (if you're following along line for line, the login is hugin and the password is xxxxx).

We want the settings to apply at boot time, therefore we will modify file system table *fstab*:

```
cd /etc
```

4. Open file *fstab* (filesystem table) in editor nano, by typing:

```
sudo nano fstab
```

5. At the end of the file, add this as one line:

```
/dev/sdb1 /media/USBstk2 vfat nofail,uid=hugin,gid=hugin,noatime 0 0
```

E. Making /Pi accessible from windows

Open *smb.conf* and check that *workgroup* matches the workgroup that you want to join (this most often WORKGROUP), and change 'win support' to yes.

```
workgroup = your_workgroup_name
wins support = yes
```

Scroll down *smb.conf* until you see a section called Share Definitions. Add this code there:

```
[pihome]
comment= Pi Home
path=/home/pi
browseable=Yes
writeable=Yes
only guest=no
create mask=0777
directory mask=0777
public=no
```

The path should point to the drive or folder that you want to share. I've set 'only guest' and 'public' to 'no' so that Samba prompts for a password when I visit the folder that I've shared. This means that when I'm using a Windows PC, I can login to the shared folders on my Pi, and I'll have the same read/write permissions that user pi has. Now type this command in a terminal, and enter pi's password twice:

```
smbpasswd -a pi
```

If you have a PC or laptop connected to your workgroup, you should be able to see your Raspberry Pi in Windows Explorer under Network.

F. Useful commands

Restart Raspberry Pi with this command:

```
sudo reboot
```

If Raspberry Pi should fail to boot, disconnect the power, remove the SD card and load the backed up copy onto your SD card using the appropriate software.

Shut down Raspberry Pi:

```
sudo poweroff
```

Tip 1: Raspberry has ssh activated by default. Download Putty.exe to your windows computer and you can control Raspberry from your windows machine. Nice.

Tip 2: If you want to use both ssh and ftp for controlling Raspberry Pi and for file transfer between Pi and your windows computers, you should check out www.bitvise.com