DDWR USB storage and NAS

Prerequisites: DDWRT build number 48122 or higher

DD WRT supports USB storage, which can be used to share files (SAMBA), run miniDLNA service for media sharing, run a simple FTP server (ProFTPD), run a simple webserver (Lighttpd) and installing optional packages.
You can attach an USB stick or removable harddrive, if you have a USB 3 port this is highly recommended, be sure to look at the specs of your USB stick, faster (writing speed above 30Mb/s) is highly recommended
When using an USB stick for storage with /jffs do not enable JFFS2 support on the Administration tab. If you already did that then it is advisable to erase nvram (if your router supports this) to clear everything and reset to default.

Formatting and partitioning

For formatting from windows a very handy free tool is available: miniTool Partition Wizard:
https://www.partitionwizard.com/free-partition-manager.html
(when you install untick the installation of antivirus software and or other unwanted items)
DDWRT supports the following linux file formats: ext2, ext3, ext4 and the universal format FAT32 and Windows NTFS
If you attach the storage permanent then use linux file format:ext2 for USB sticks, ext4 (journalling file system) for harddisks, If you want to swap your storage and use only for file sharing then format with FAT32, (mind the 4 GB file limit) or NTFS.
DDWRT uses two special partitions: /jffs for miniDLNA and webserver (Lighttpd), and /opt for installing optional packages, these partitions have to be formatted with a linux file system (ext2/3/4).
So if you want to do all this make at least 3 partitions, use a GPT partition table and not an MBR otherwise not all partitions will be properly recognized, the miniTool Partition Wizard can convert for you:

1. Ext2 (USB stick) or Ext4 or Fat32 or NTFS for file sharing, if you are using the usb stick to swap between computers and want FAT32 or NTFS then make this the first partition otherwise windows cannot recognize it
2. Ext2 (USB stick) or Ext4 /jffs partition, if you label the partition as *jffs* then the partition will automount to /jffs.
3. Ext2 (USB stick) or Ext4 /opt partition, if you label the partition: *opt* , then the partition will automount to /opt
4. If your router is heavily taxed then you can make a small linux swap partition (just choose 2 GB and format as linux swap), the partition mounts automatically as /swap.
   It is recommended to do that on an "fast" USB drive connected to USB3. See: http://www.dd-wrt.com/phpBB2/viewtopic.php?p=968683
   You can see if the swap file is used with: cat /proc/swaps

Note: not all builds (especially mega builds) support ext 4 and/or ntfs.

The easiest way is to have two partitions (ext2 for USB, ext4 for harddrive) and label them opt and jffs, in this way these will be mounted automatically to /opt and /jffs.
The /jffs partition is used for miniDLNA, the /opt partition is used for optional packages.

I do not use NTFS as the NTFS driver is rather picky, if you disconnect the USB stick without a proper umount or did not umount before powering down the router, the NTFS driver will flag the partition as "dirty" and only after you run a "chkdsk" from a Windows client you can mount again!
I am hoping and expecting that newer builds will have a better NTFS driver. But unitl then you better stay clear of NTFS formatted partitions.
Besides NTFS is not necessary as Samba is agnostic to file systems so it happily shows all your files to a Windows client even if the partition is formatted as ext2/4.

Installing USB on router

Open your webGUI, mostly by typing 192.168.1.1 in your webbrowser, login and go to the **Services/USB** tab. Enable: Core USB support, USB storage support, Automatic drive mount and if you want to use the SES button to remove drives. You should see the picture below.
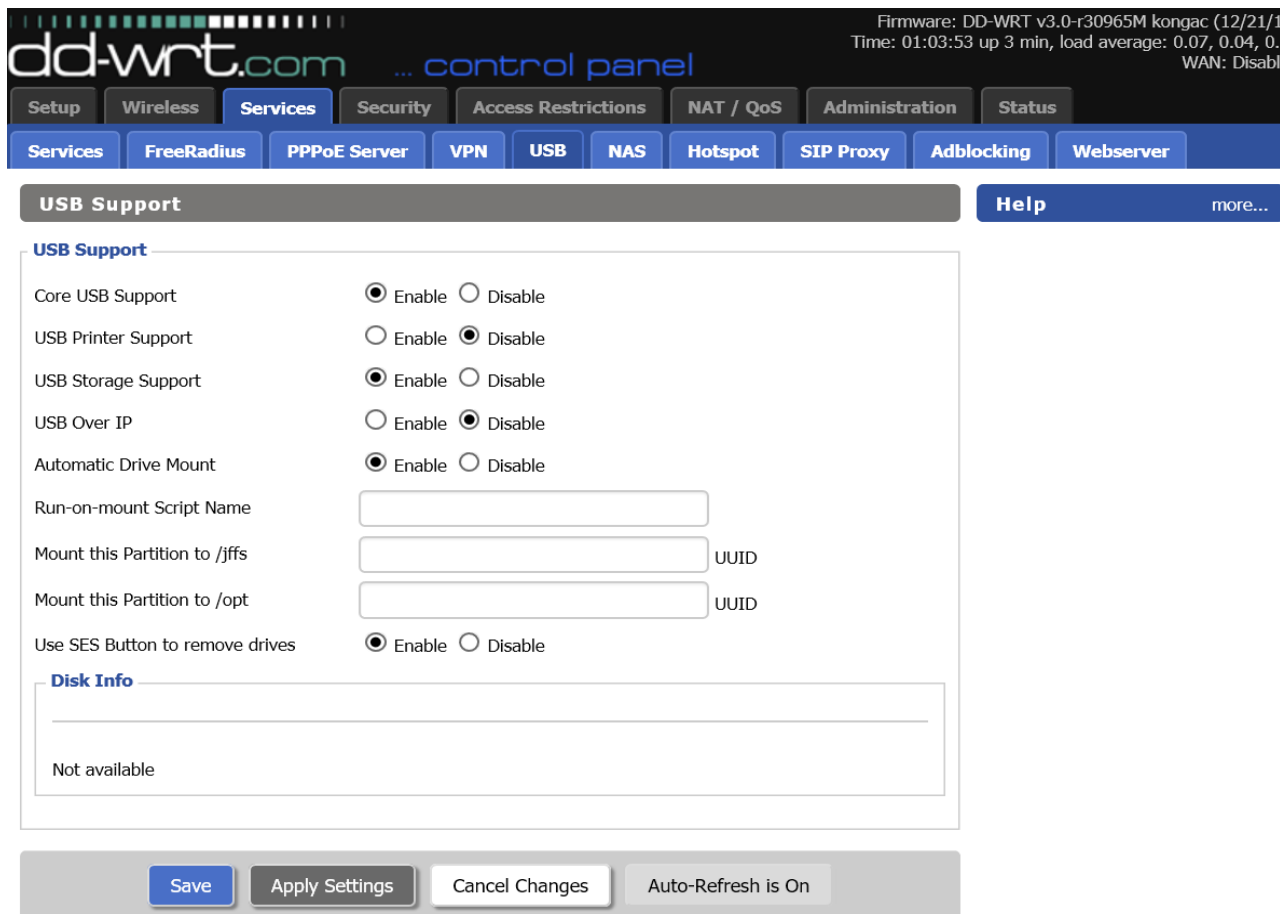
Place the USB drive in the router and the partitions will automount see next picture.
If they do not automount or if you did not label them opt or jffs then you can copy the UUID (which can be found in the partition description see picture) and place the UUID in the **Mount this partition** field.

UUID takes precedence over the label.

I have formatted an USB stick of 128 MB, with one fat32 partition, one ext2 partition named *jffs,* one ext2 partition named *opt*. (Some builds will label an ext2 partition as ext4)

USB Support

Core USB Support	● Enable ○ Disable	
USB Printer Support	○ Enable ● Disable	
USB Storage Support	● Enable ○ Disable	
Drive Read-Ahead buffer in sectors	256	
USB Over IP	○ Enable ● Disable	
Automatic Drive Mount	● Enable ○ Disable	
Run-on-mount Script Name		
Mount this Partition to /jffs		UUID
Mount this Partition to /opt		UUID
Use SES Button to remove drives	○ Enable ● Disable	

Disk Info

Diskspace /tmp/mnt/sda1	11.0G / 69.0G	14%
Diskspace /jffs	410.4M / 16.2G	2%
Diskspace /opt	488.4M / 17.9G	3%

--- /dev/sda1

Block device, size 80.00 GiB (85896146432 bytes)

Windows NTLDR boot loader

FAT32 file system (hints score 5 of 5)

Volume size 79.98 GiB (85875130368 bytes, 2620701 clusters of 32 KiB)

/dev/sda1 mounted to **/tmp/mnt/sda1**

--- /dev/sda2

Block device, size 20.00 GiB (21476206080 bytes)

Ext2 file system

Volume name "opt"

UUID DCD71277-3649-D501-5057-12773649D501 (NCS)

Last mounted at "/opt"

Volume size 20.00 GiB (21476204544 bytes, 10486428 blocks of 2 KiB)

/dev/sda2 mounted to **/opt**

--- /dev/sda3

Block device, size 18.03 GiB (19362309120 bytes)

Ext2 file system

Volume name "jffs"

UUID 71EEEAF4-F92C-D501-10E0-EAF4F92CD501 (NCS)

Last mounted at "/jffs"

Volume size 18.03 GiB (19362308096 bytes, 9454252 blocks of 2 KiB)

/dev/sda3 mounted to **/jffs**

Enabling Samba (file sharing)

On the **Services/NAS** tab enable SAMBA for sharing files across the network.

The usage of the Server string and Workgroup fields are unclear, in earlier postings, the Server string was the name the router advertises itself to the network, however in recent builds the Router name (on the setup tab) is the name which the router uses to advertise itself.

The workgroup field is supposed to be the same as the one your computer/network has (default windows is workgroup), but my PC has a totally different workgroup and could see the share nonetheless.

Connection Limit: used when the ksmbd module is loaded default is 4

Access Level: *Everyone* translates to "map to guest= bad user", *Restricted* translates to "never"

Minimum Protocol Version: use *NT1* if you have legacy apps (unsafe) so usually use 2.0.2

Filesharing

Under file sharing choose the path of the partition and a name.

The name is the name which appears in Windows it is not the name of a directory, so if you want to use a subdirectory then you have to use the real path, use winSCP to see the real path and note this field (Subdir) is case sensitive.

"Public" means access for everybody, if you do not want public access or need access with Linux/Android then add a user in the "Users" section., this is self-explanatory.

"Access" defines Read/Write or Read Only access, if you cannot write to the partition then check here.

Samba

Samba	⦿ Enable ○ Disable
Server String	EA6900
Workgroup	WORKGROUP
Connection Limit	16
Access level	Everyone ⌄
Minimum Protocol Version	SMB 2.02 ⌄
Maximum Protocol Version	SMB 3.11 ⌄
Encryption	Off ⌄

File Sharing

Shares

Path		Subdir	Name	Public	Access		Action
/jffs	⌄		jffs	☑	Read/Write	⌄	⊖
/opt	⌄		opt	☑	Read/Write	⌄	⊖
/mnt/sda1	⌄		data	☑	Read/Write	⌄	⊖

Add Share

Users

User Name	Password		Access Shares	Samba	FTP	Action
hans	●●●●●	☐ Unmask	☑ jffs ☑ opt ☑ data	☑	☑	⊖

Add User

Windows: version 10 21H2
Windows users can connect without any apparent password being necessary the router is visible in file explorer
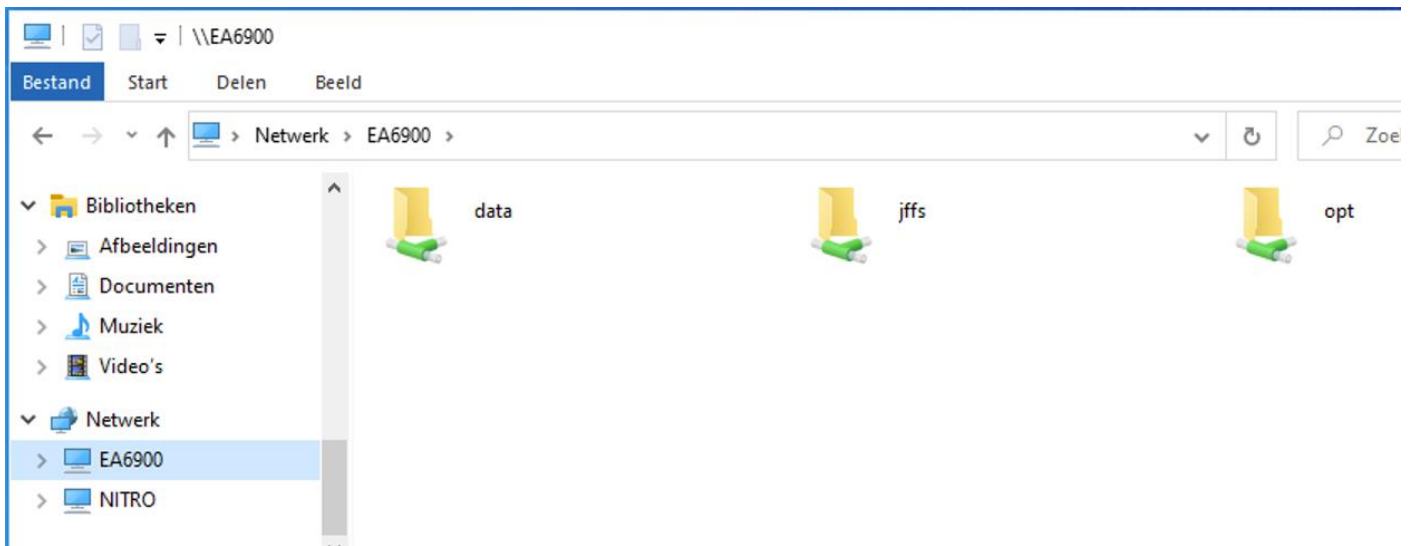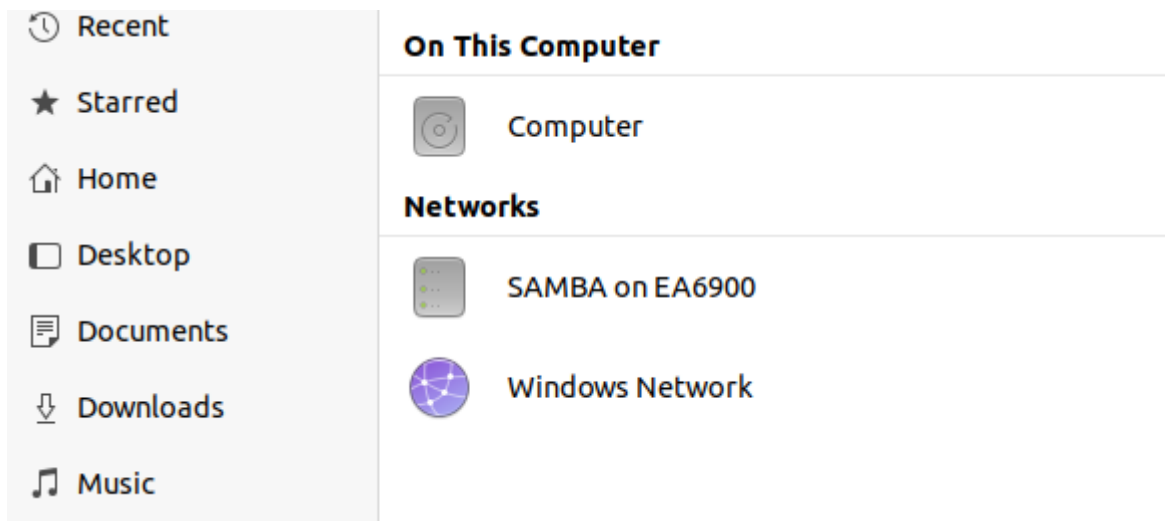
Linux

Linux users can connect with Anonymous with these settings even if no username is made.

If present on your router enable mDNS/Avahi and use the default settings

If you enabled Avahi (Ubuntu 20.4) you will see under Files/Other Location: SAMBA on [router-name]
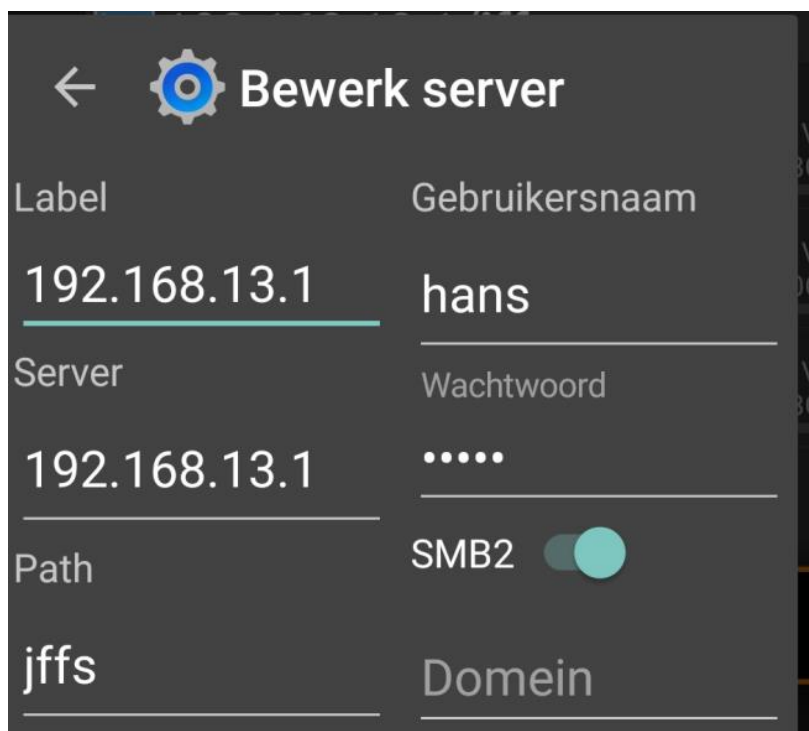

Clicking on SAMBA on [router-name] it will reveal your shares:

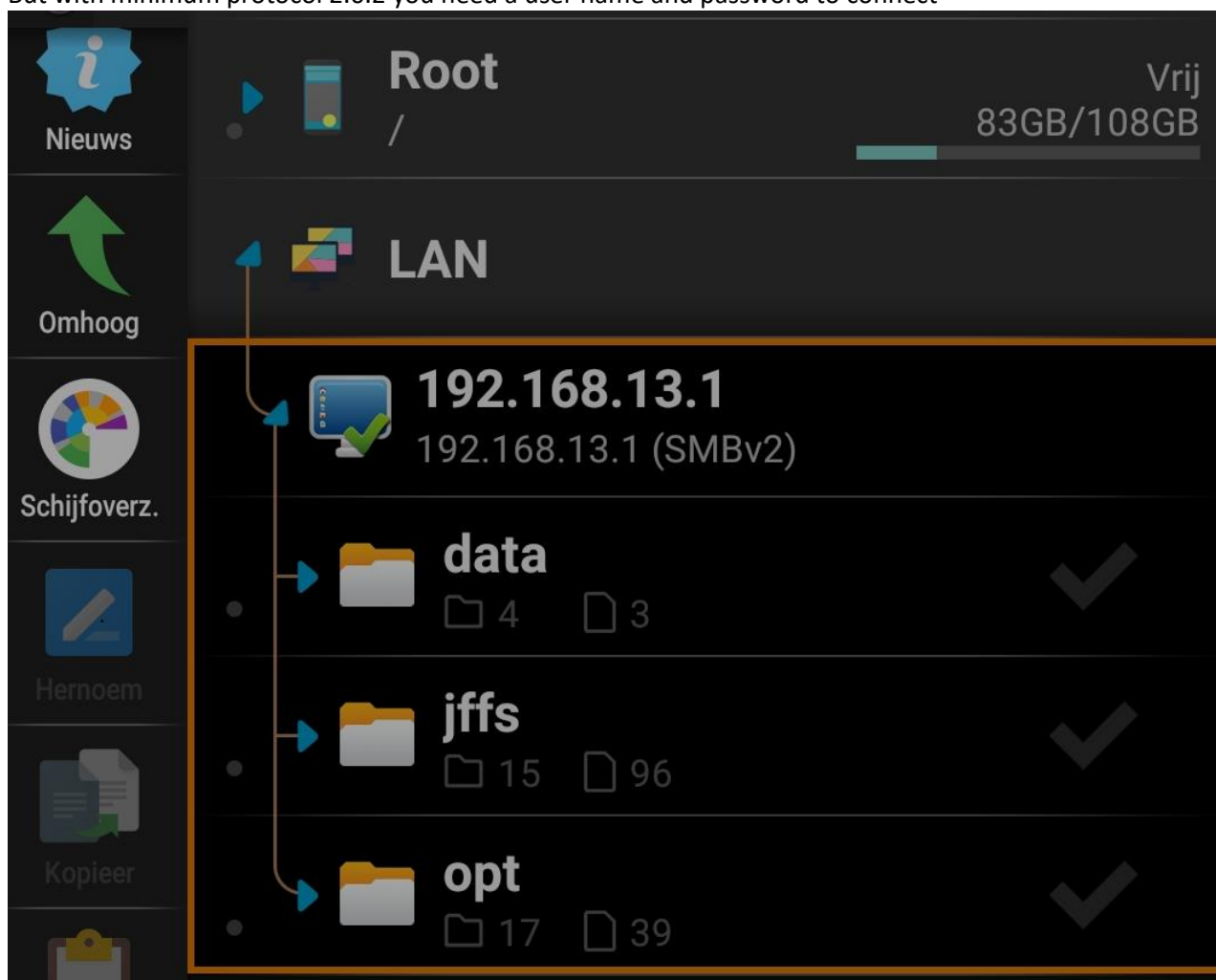Clicking on the shares you have to give in a one time (if you save it) password or use anonymous login

Reference:
https://think.unblog.ch/en/microsoft-replaces-netbios-by-mdns/

Android: X-plore file manager 4.28.12 Michael Bacik

If you set Minimum Protocol Version to NT1 the X-plore client can connect without a username and password and you can delete the User from the File sharing list on the router (user hans)

But with minimum protocol 2.0.2 you need a user name and password to connect

For Windows users who cannot access non public shares:

https://serverfault.com/questions/969611/access-samba-linux-file-share-w-o-using-allowinsecureguestauth-on-clients
https://www.thewindowsclub.com/cant-access-shared-folder-because-of-organizations-security-policies
https://forum.dd-wrt.com/phpBB2/viewtopic.php?t=330879&postdays=0&postorder=asc&start=0

For Older windows versions it is reported to work with:
Access Level: Restricted
Minimum Protocol: NT 1.0
Max Protocol: SMB 3.02
Encryption: Off

Web Services Dynamic Discovery (WS-Discovery)

https://github.com/christgau/wsdd

https://fitzcarraldoblog.wordpress.com/2020/06/16/using-ws-discovery-to-enable-windows-10-to-browse-smb-shares-in-my-home-network-of-linux-computers/

Storing logs in /jffs

Administration/Commands and Save as Startup, this will also copy the first part of the syslog to USB and make the syslog visible in the GUI:

Code:

```
is-mounted /jffs      # waits for /jffs
if [ ! -L /tmp/var/log/messages ]; then cat /tmp/var/log/messages >> /jffs/messages; fi
killall syslogd
syslogd -L -Z -s 8192 -O /jffs/messages
ln -sf /jffs/messages /tmp/var/log/messages
```

Note I do not save it as USB although that seems the logical place to set, but the USB script is running for every partition you have which results in duplicate savings.

Script to create fixed mountpoints

Can be handy if you have more than one drive as the drives might swap mount points on reboot:
https://pastebin.com/VDZ32r2D

Enabling DLNA

This is in large part self-explanatory, if you enable Clean Database now and Apply, the database is built again.
Under shares put every partition you have files to share for DLNA.
MiniDLNA needs a jffs partition to place the database in, so be sure to mount a partition as jffs.
Clean database now means that the database is rebuild, so if you have an index problem you enable it and Apply,
then the database with your media files is rebuild and the option switches back to disable.
Merge media dirs means (I think) that if you have more than one media dir it is represented as one.

Enabling ProFTPD

If you want anonymous login then specify the <u>full</u> path e.g. /mnt/sda1/ftp, or /opt/ftphome, in the "Anonymous
Home Directory", this must be an existing directory!.
Do not mistake the alias in windows (the Name you give in the File sharing section) for a directory name, use winSCP
to see the path
If you want authenticated login then disable Anonymous login and specify a specific user in the Users section

Enabling Lighttpd (webserver)

On Services/Webserver tab enable lighttpd, default webserver root is /jffs/www, you can place your index.htm file
there.

/tmp/smb.conf

```
[global]
log level = 1
netbios name = EA6900
server string = EA6900s
syslog = 10
encrypt passwords = true
preferred master = yes
use sendfile = yes
aio read size = 2048
aio write size = 2048
large readwrite = yes
security = user
oplocks = yes
mangled names = no
max stat cache size = 64
workgroup = HOME13
bind interfaces only = yes
guest account = nobody
map to guest = bad user
smb passwd file = /var/samba/smbpasswd
private dir = /var/samba
passdb backend = smbpasswd
log file = /var/smbd.log
max log size = 1000
socket options = TCP_NODELAY IPTOS_LOWDELAY SO_SNDBUF=262144 SO_RCVBUF=262144
read raw = yes
write raw = yes
max xmit = 65536
dead time = 15
getwd cache = yes
lpq cache time = 30
server min protocol = SMB2_02
server max protocol = SMB3_11
printing = none
load printers = No
usershare allow guests = Yes
smb3 encryption = no
[jffs]
comment = jffs
path = /jffs
read only = no
guest ok = yes

force user = root
[opt]
comment = opt
path = /opt
read only = no
guest ok = yes

force user = root
[data]
comment = data
path = /mnt/sda1
read only = no
guest ok = yes

force user = root
```