PBNIGMA VX II in Ferrari500HD

By goran/gorski

Contents

In Cyberspace, 12.12.12

An open introduction!

The minimum good will and self-esteem required

Dear fellow enthusiasts, even the newest of beginners amongst us,

If you are sufficiently patient, this guide will help you unleash the power of Linux, in a Multimedia Centre of Ferrari 500 HD quality, using Power Board's Enigma2 Operating System (from now on referred to only as **MMC**, **F500HD**, **PB**, **E2 and OS**, respectively)!!!

Do not trust anyone who keeps telling you that Linux is not for everybody! Believe in yourselves! For crying out loud, if I can – anyone can! I am not from "technical/IT and/or natural sciences" but from "humanities", so I have no idea "what's really going on 'behind the scene', in the code itself"! Moreover, I couldn't code or "hack" anything even if my very life depended on it and therefore do a bit of this before you start...
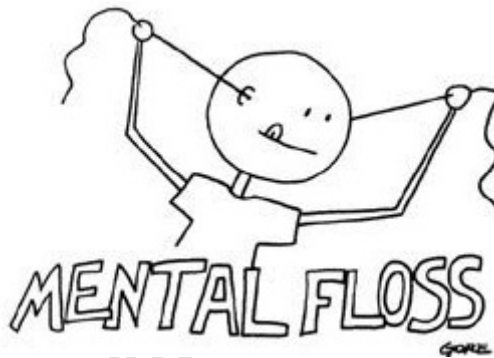
Guaranteed...

...if you persevere, within hours, provided one follows this "little manual" of mine, with loadsa pretty pickies, it will all work well in the end, given the absence of spiritual laziness...

If one either doesn't know how to dispel self-doubts or if one is being all 'majestically princely', i.e. if one "just can't be bothered", that is to say, if one "only wants it all working" - but **without any effort**!!! – one is bound to be "disappointed"! At least well out of pocket, paying the professionals to do it for one, as this just won't set itself up nicely...

I know only of persistence and doggedness. Then and only then "the magic" happens. Only then can one really enjoy one's new toy, after "working on it", and learning about its "ins and

outs"!!! EVERYBODY, women and children, technophobes and luddites included, _can_ learn about it and enjoy it - easily! I will make sure it happens by the end of this "guide", hehe!!!

This will not be an exhaustive, comprehensive "how to"!

This "little" guide will only be **an example of PBNIGMA II VX in F500HD**, since I cannot cover properly various features of F800HD SE or 8000 models, like WLAN, built-in HDD, twin tuners etc. Besides, new drivers, new Images, new plug-ins etc. are being written and re-written constantly... So, the hobby keeps evolving and being interesting!

In addition, I only have one original card, so some issues with card server part of Card Sharing (in future text "CS"), I cannot fully test and report. At best, I can only read and give other people's account of it all, maybe with some of their examples included in the text.

However, **all the other crucial things** (and a "bit" more, heh) **will be here, described in detail, in a careful step-by-step manner, so** _everybody, with minimum patience, self-confidence and intelligence,_ **can sort it out for themselves**. Given some time to read - and a bit of necessary concentration - you will be able to do it, aided every step of the way, even regarding the basics of PC applications, with plenty of examples and graphics!!!

Nevertheless, I must warn you, once again, at the very outset, to do it properly, please - EVERY step of the way, without "cutting corners" - so you familiarise yourselves thoroughly with all sorts of possibilities within E2!

And there is a lot of it awaiting! A shitload of plugins, skins, emus, tools and whatnot (which can satisfy just about anybody's specific need), is "out there", so this can't be a total but always partial guide to E2 in F500 HD or any MMC, for that matter!

Still, I'll try giving it a good go, to describe how to fully use most of E2's capabilities, bar some HW limitations that I face with the models I have, as I said... By the time we're finished here – if you follow it properly - you will come pretty close to fully enjoying it all!

Register here, get the SW, learn and contribute, if you can

If one needs more info on a specific issue or a piece of FW, visit various good forums, like...

http://www.pb-powerboard.com/board/index.php? – in German and English: **get a PBNIGMA II VX image you want, primarily here** – and give feedback to the worthy authors, of course!

http://www.8a8f8.com/ - Ferrari boxes, in English and German

http://www.sat-universe.com/ - English and many other language sections

http://www.satforum.me/index.php - Serbo-Croat/Croato-Serbian, English and German

By the way, this guide will also work in original Dreamboxes, but - thanx to HW differences, as I will explain later on (thanx to the specificities of F500HD and advantages over DB500HD) – with some reduced functionality (unless you buy more HW)...

Credits

This is NOT all my work, even though most of it is and I certainly wrote all of it, minus the quoted text!!!

Of those who taught me or just shared their experiences with me, I would like to thank a **colleague from www.SatForum.me - B@mbi! Then, coders like Stibbich and co. of Power Board Team, Tromoto/Delfi, subixonfire, DDamir etc. Also, non-coder enthusiasts like Tinos etc. There are more people like them, you know who you are**, who helped me understand better the "ins and outs" of various parts of this "cloned" box, like F500HD, Linux, E2, plug-ins for it, CS SW... Also, thanx goes to people on **Ferrari forum**, since I am now testing F500HD!!! (And here are the results of the Cyberspace jury... hehe...)

I would especially like to thank all who give _freely_ to these projects!!!

Cheers!

goran/gorski

P.S. The _freeware/gratis_ applications you need for this, like 7-Zip, Notepad++, FileZilla Client, Firefox browser are a lot more - are all here: http://www.theopendisc.com/ - the power and spirit of Open Source and sharing!!! My hat down!!!

Please, note that one has "Open Education Disk" at that address, too!!! All free!!! No kidding!!!
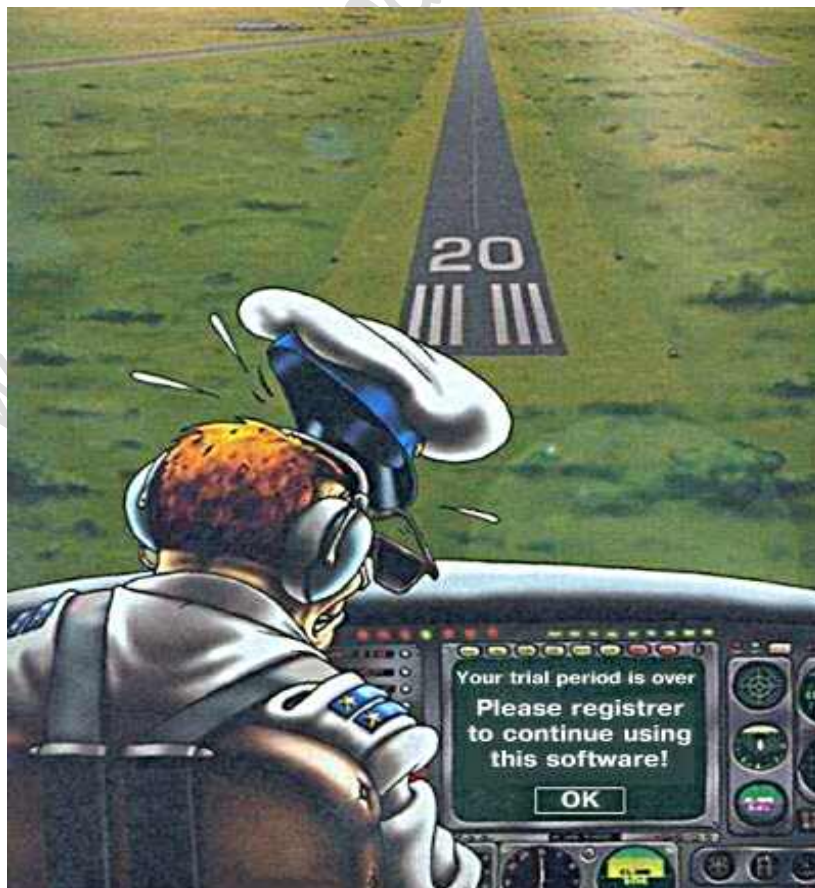
1) Failing to prepare is preparing to fail!

SW and HW preparation

Before I begin, let me say that not everything can be explained in a strictly temporal, logical manner, as if you are actually doing it - but I'll try anyway... **SW preparation part first!**

For newbies, who just got their Multimedia Centre:

One should search the internet, download and install on one's PC (the apps are freeware!)
-**UNIX compatible editor**, like **Notepad++** (do **not** edit your files with *Notepad, Word/ -Pad*)
-**FileZilla Client** (**FZC** from now on), to connect (FTP) with your box
-**7zip**, to decompress compressed files ("unpack/extract" them to your PC)
-**PuTTY**, for Telnet commands – for advanced users
-**DB Edit** and maybe **DreamSet Editor** to edit and download/upload your channel list
-**Easeus Partition Master Home** application - erase/create partitions on your USB devices

For veterans (if you already have E2 installed), backup E2 files to your PC/laptop:

-**backup your channel list**, using DB Edit, if you already had your settings sorted out in this regard - and don't forget to save your /etc/enigma2/**settings file**, also!
-**backup** your **EMU(s)**, just in case, using FZC or depending on an Image, "internally"
Various configuration files for PB-E2 VX are in:
/etc folder [for CCcam] and
/etc/tuxbox/config [for OSCam] folders,
modules are in /usr/bin/emu folder, plus
scripts, to start and stop an Emu from CAMD Manager, are in /usr/script/emu folder.

For F500HD download these application to flash your receiver:

-FerrariFiller_1_3_3_7F or

-FlashWizardPRO or just use a

-**Web Browser** via (W)LAN Home Network (FireFox is OK, IE can do it, Chromium, also).

For expanding your receiver's "flash"/memory limitations and/or multiboot purposes:
-**USB memory sticks** of at least 256MB (for Flash Expander) – prepare a few, since not all might be compatible with your machine, ergo the more, the merrier, just in case...

We need to format a few of them, since sometimes USB sticks are a bit temperamental and might not work (very well) with your machine...

Easeus Partition Master Home Edition, which is free for personal use, will do the job nicely, if you need to format your **USB HDD**, too. This is what I will do, later on, in this installation!

Plug one into your PC/laptop and then start the application. You will see something like this:
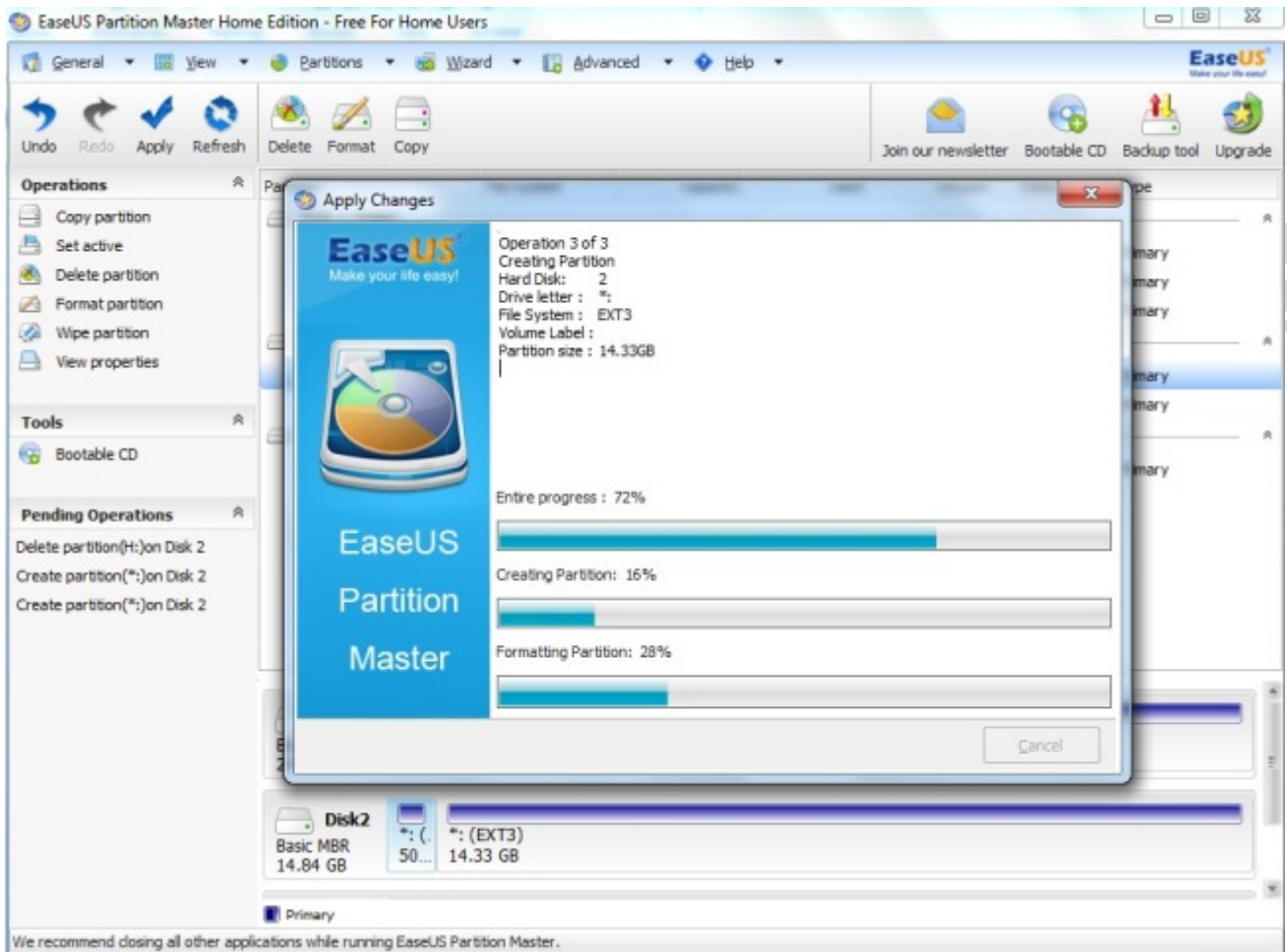
The bottom one is the USB stick (Disk2). Right click on it → Delete Partition. Right click → Create partition; make it a →Primary partition →File System called EXT3 (or better EXT2?).

I would advise you to get a larger capacity USB memory stick of small dimensions (as technology generally tends to, they are getting ever cheaper and smaller - see Deal Extreme website, for instance), especially if you are going to use it for Timeshift function.

If you do get a greater capacity USB stick, make two (2) partitions on it:

> 0) for Flash Expander (500 MB is enough for all our purposes, 1GB is even better) and

> 1) to direct EPG, picons, subtitles etc. to it (the rest of your USB stick).

Then, click on "Apply", in the left upper corner and confirm. Wait. (See the image above.)

F500 HD has only one external USB port, so if you are going to use a USB HDD external drive, you will simply need to plug in the stick internally. Worry not, I will explain it all below, in detail, so any technophobe can do it easily and without stress!!!

As far as HDD is concerned, format it into EXT3 (or EXT2?), using the app mentioned, on your PC. It's faster like that, than formatting it by using F500 HD/PBNIGMA II VX! Large HDD formatting by F500HD E2 could last forever and of course, PC is more capable...

Btw, don't bitch: original DB has no external USB port! ☺

On top of that, one can connect it all externally, with some extra hardware (**HW** from now on), like an external USB multiple port, which is best used with its own, independent power supply unit, then you can add external USB subscription smartcard readers, too.

WARNING!!!

DO NOT USE THE USB STICK IN CONJUNCTION WITH ANY MULTIBOOT PLUGIN BY GUTEMINE! IT MAY DAMAGE YOUR MMC, WHICH IS BY DESIGN! THESE ARE THE AUTHOR'S WORDS, NOT MINE, AS HE IS VEHEMENTLY AGAINST CLONES!

How to add a USB memory stick internally to F500HD

HW preparation part: this is an advantage to having a Ferrari, rather than DB 500 HD; for instance, adding a USB stick internally to your F500HD enables you to...

1) have the other, external USB port (which DB 500 HD does not have!) free to attach a USB HDD (as mentioned, with its own power supply is always best);

2) simply move your emus, skins, picons, EPG etc. to the USB stick and make it easier for E2 to function, as you relieve the limited memory of your Ferrari, as partially mentioned above;

2a) in a well-thought-through PBNIGMA II VX image you can direct those to USB stick and

2b) one can also expand F500HD capabilities/capacity by using Flash Expander, in order to move lots of your stuff to it, which is best, as it includes all the skins, plugins, emus etc.

Have a look at this and enjoy unscrewing those 4 screws, removing the F500 HD cover, then...
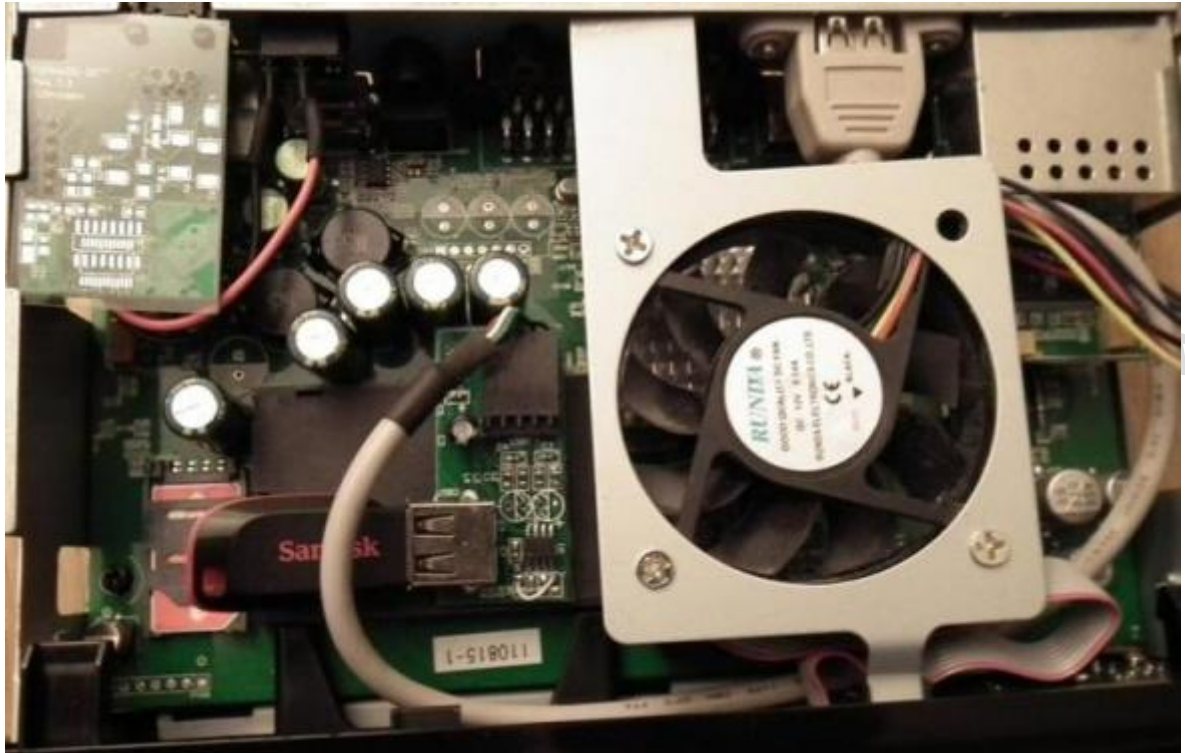
Contrary to popular belief about size, smaller size is easier to handle, it also fits better and after all, it is sexier, too… ☺

Later on, I will explain in detail how to do the "expanding" and how to direct EPG, picons etc.

Now, put the cover back up, place your MMC into the "centre of your MM operations" and…

2) Let's connect...

...fasten your (W)LAN belts...

I will only presume that you have **connect**ed your box properly to your:

-**satellite dish**;
-**TV** [SCART or HDMI cable] or **Home Theatre** system [many possibilities there].

However, **I will explain some aspects of connecting your F500HD with:**

-**PC** [by LAN or WLAN], **directly or indirectly** [*via* a Modem/Router].
-**internet** – as above, directly *via* router or indirectly *via* PC.

How does one connect them? Either *via...*

-**crossover** ethernet/network cable, esp. if one is to connect **PC and receiver directly** - more info one can find following this link: http://en.wikipedia.org/wiki/Ethernet_crossover_cable

-or *via* **straight** ethernet/network cable, if one is to connect one's **router and box**, as described here: http://en.wikipedia.org/wiki/Category_5_cable

Reserve your receiver's IP address in your router/modem

At this point, I would advise you to enter your modem/router's interface and **reserve** your receiver's **local network IP address, by tying it to your box's MAC address**. This way, **you will always have the same local network IP address** and you will not have to bother with potential quirks of DHCP (automatic IP address assigning protocol –deactivate it!). It saves some time and a headache! In fact, **do it for all the devices in your home network**!

This is what it looks like in my router's interface:

...we're about to take off...

...into the cool and wonderful world that this jolly hobby has to offer, thanx largely to the work of the Open Source community, that awaits on the internet, once you connect your box to it. One should think of our boxes as PCs, since these days, many of those little boxes, actually are small, cool computers –Multi Media Centres ("MMC").

Connect your MMC with internet, PC and NAS

Having that in mind, it is best if you setup a **modem/router** as your internet connection. That way, your MMC, NAS (Network Attached Storage, a small PC serving as on-demand audio-visual storage [and more!]) and your PC are connected indirectly, i.e. *via* the modem/router.

In other words, your NAS, PC and your Sat TV receiver/STB/"box"/MMC will be connected to the net *via* the router. Similarly, they are connected with each other, indirectly.

This is a better combination, to strive for, because all the components of your network are independently connected to the net, as well as to one another.

Below, you will find a scheme that is relevant for the kind of setup that I will describe in this document, consisting of NAS (server), MMC and PCs/laptops (both depicted here as "Workstations"), where "Switch" = modem/router, in the centre of all the operations.

Let's pretend that one of the "Workstations" in this scheme is your F500 HD or whichever MMC type of box you might have - because F500 HD is, after all, a small computer...

Let us assume that the "Server" is your NAS, where you store all your videos, music and photos, from which to stream them to various devices in your Home Network (TV, MMC, PCs).
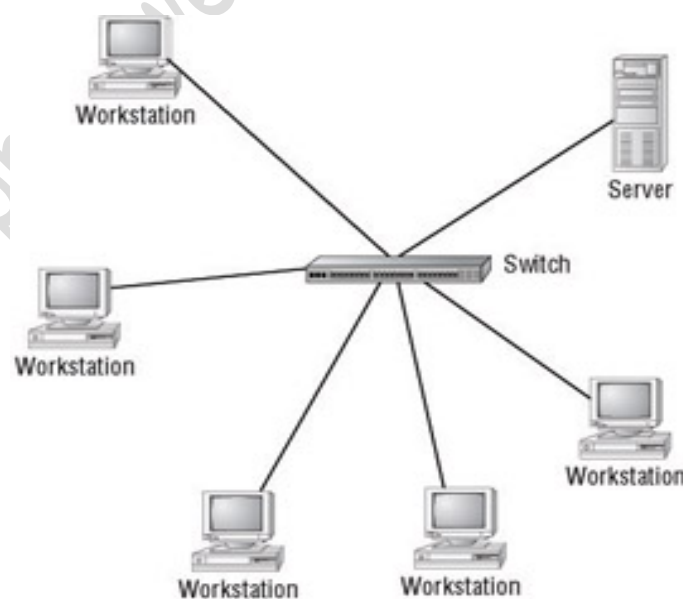
If this hasn't been done correctly, your box won't be connected to the PCs or NAS, i.e. internet. If in trouble, first test your cables - just in case!

When you are using a router, then all the machines we are considering here must have IP addresses in a specific range, let's say from 192.168.1.1 – 192.168.1.254.

One has a few possibilities, when setting it all up: **wireless** (Wi-Fi) and **cable** (Wired) connections. Both can be setup either **automatically** (DHCP), or **manually** (static IP).

If you tie your F500 HD IP address to its MAC address in the router itself, as I mentioned before, **DHCP** will do, because your IP address will nevertheless be the same, at all times!

PBNIGMA VX II will set it up during the initial setup, *via* Wizard. We'll come back to it.

Cable it up (LAN) if you can

It's always preferable to cable it all up directly, using **LAN cable**, of course, especially if you want to stream high bitrate content from your NAS or laptop/PC to your MMC.

Another option: connect in a wired manner but *via* **electric cables/socket**! No more long LAN cables all over the house and wife nagging endlessly, because of "ugly cables everywhere"!☺

Buy a couple of those small devices, like the one below, plug one of them into electrical socket next to your router, then LAN cable from it into your router (LAN port 1-4, whichever is free).

Then similarly, plug the other one into an electrical socket next to your MMC and plug LAN cable from the device into your F500HD!

You're on the net! Simple as that! Tested!!!

Wireless (WLAN): issues...

Some MMCs have WLAN built-in, some don't.

However, one can connect wirelessly to one's router either *via* a

-USB dongle or a

-dongle that uses LAN port.

WLAN is necessary on occasion, but I can't help you with that, sadly. Use the support forums, where you should get a lot more information and files needed, on just about any topic, this included... (There are devices for all occasions…)

Later, we shall come back to some of these details, when we speak of setting up a newly installed E2.

For now, be aware that it is essential to have this sorted out beforehand, since we will be using a PC application, in order to "flash" E2 into F500HD, using F500HD's local network IP address!

In fact, that is the next stop on our little journey – putting PBNIGMA II VX into your box…

3) IN MEDIAS (ST)RES!!!

We shall now install and then configure **PBNigma-Ferrari-dm500hd-121101**, downloadable here: http://www.pb-powerboard.com/board/index.php?showtopic=95602

The core of the whole operation we shall describe in small, methodical steps - no sweat! Chill!

How to "flash" F500HD with PBNIGMA II VX

Don't worry, it's dead simple. Really!. Nowadays, things are becoming seriously simplified!

The Web Browser method

This is the simplest way of "doing it" and it doesn't require any special SW, cabling (other than a simple LAN cable, which every household has) or previous knowledge. This guide will do!

Things you need...

1) An "**Image**" in ***.nfi format** (see PB and Ferrari forums, of course!).

2) In your Home Network, your router should **either**

-have **DHCP server activated** (automatic home network IP address assigning [it's mostly "on" by default, so chillax...]) **or**

-have **an IP address assigned to F500HD manually**, tying it to its MAC address, so it always gets the same IP address, no matter what, as I explained earlier. That is the easiest solution!

3) **Ferrari must be connected to:**
-**your router** *via* **a LAN cable** (straight or crossed [I am not sure about WLAN]), as well as
-**your TV via HDMI cable**, plus
-your **TV must be switched on**.

4) The SSL (Second Stage Loader) must be fully operational (and compatible with the E2).

The procedure

1) Switch your Ferrari **off: at the back**, there is an **OFF switch**. (**Standby** *via* RCU won't do!)

2) **Press the "power button" at the front of the receiver and hold it** firmly. (Don't push it up or down, so it can be released into original position, i.e. so it doesn't get stuck.)

3) **Switch your Ferrari on**, at the back, but **never letting go of the "power button"**.

4) On your TV screen **you will see your rec's IP address**.

Note: **Release the button about 5 secs after the screen flickers the first time**, as it hasn't yet done the job, when it flickers initially. This is what you should see:
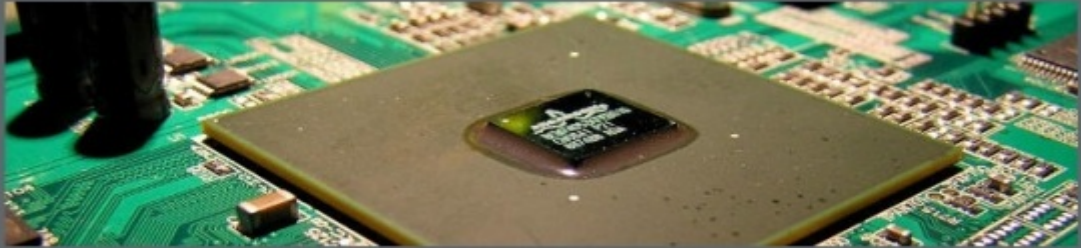
5) Now, **in your Web Browser** - Firefox (or whatever you use) - **write that IP address in the address box at the top**, like this: http://192.168.x.x/ – where x = Ferrari's specific address in your Home Network. Press "Enter" on your keyboard.

Note: **SSL** (Second Stage Loader) version may differ from the photo below. Mine is SSL87F and it is required for the E2 mentioned. Get the **SSL87F** (or whichever one you may need) from http://www.ferrarismartcard.com/ and **repeat the procedure** I am about to describe in detail, **with the SSL file as well** - with one difference to the procedure here described: namely, **switch OFF** and **ON** F500HD **at the back**, both after flashing the SSL and the E2.

So, to the procedure itself now… You will see something like this:

Click on the bottom bit: "**Firmware upgrade**".

This is the next image you will see:

6) Use the "Browse..." button to find (on your PC's HDD) and choose an image you want to "flash"/programme/"burn" into your Ferrari → once it is highlighted → click on "Open"!

Name	Date modified	Type	Size
PBNigma-1.0-dm500hd.nfi	01/11/2012 03:56	NFI File	43,914 KB
PBNigma-Ferrari-dm500hd-121101.tar	01/11/2012 08:10	tar Archive	43,920 KB
PBNigma-Ferrari-dm500hd-121101.tar.gz	02/12/2012 16:20	gz Archive	41,522 KB

7) Now, go back, up a bit, to the photo regarding flashing/upgrading: click on the "**Flash**" button and wait a bit. Patience! When it's done you'll see this message in your WebBrowser:

Firmware upgrade complete. You may restart your Dreambox now.

Under it, one will see "**100%**", if all went well. Then, click on "**Reboot**" button. Your Ferrari should now "boot"/start with a new image in it. You should see this boot (TV) screen:

4) PBNIGMA II VX initial configuration!

An initial configuration **Wizard** starts now, helping you to configure all sorts of things, starting with your F500HD → TV connection…

Choose whatever HW you have and whatever resolution it allows etc. I am choosing HDMI for best connection, at the best resolution possible with this MMC/HW – 1080i.

After that, choose the **language**, **networking connection** and so on. I normally skip it, after choosing the language and proceed to set it up manually, as my tuner setup is a bit complex (details on that are coming). But just use your common sense - if I didn't describe every little step in this part of the procedure - according to your HW and needs/preferences.

Most network and similar default options during the Wizard's configuration procedure are OK, so just confirm them.

If you want it done differently, then do it manually afterwards. I'll try to cover some of that, since **PB Team** have moved on to the excellent **OpenPLi Team's SW sources** for their new image. **OpenPLi E2 menus have many more options**, compared to a standard E2.

The link to **OpenPLi team's portal** (and from it the forum) is: http://openpli.org/

Post coital bliss... or frustration... depends on the day...

If all is well, your "RCU" will function normally and you will give commands using it.

However, when I got my F500HD, the front panel was faulty, hence the beam from the RCU didn't connect. The front panel had to be replaced and then it worked! So...

In case of trouble: Webinterface access to E2

If your RCU or remote sensor are faulty, one should still have access to the box, *via* **WebInterface E2 plugin**. We also use it to stream from F500HD to a PC... More later.

In that case: **WebBrowser** → one writes Ferrari's address like this: http://192.168.x.x:80 → hit "Enter" button on your keyboard → click on Box Control → Web Remote and that's it, controlling it *via* PC/laptop, using your Home Network (as shown below)...
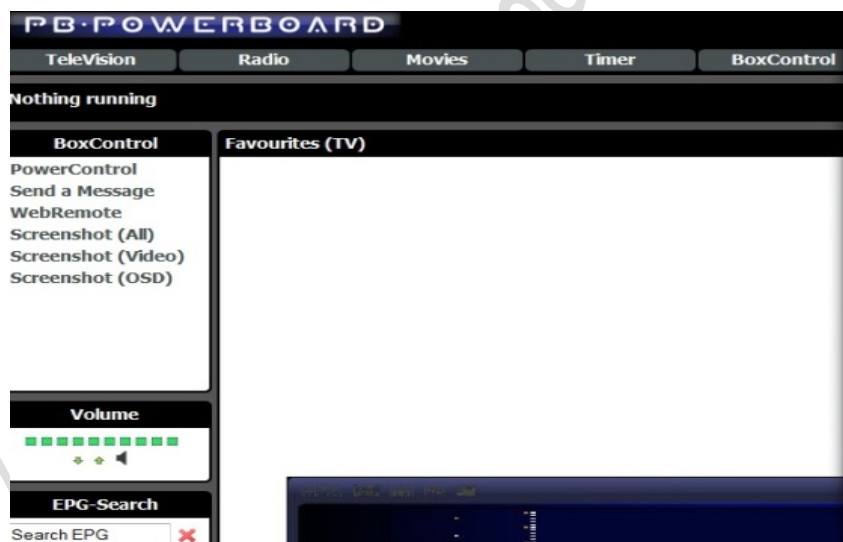
Of course, this is highly unlikely to happen!

But sometimes, it does, so I thought I better mention it, to prepare you, if something like this happens again, due to harsher transport conditions or any other cause of such malfunctions...

5) Power Board Centre

This is **the secret of this excellent image** - amongst other things, such as **great online support for precisely this machine, a "clone", with plugins that are safe for it!!!**

PB Centre is a well thought through and carefully executed set of integrated tools, giving one all that is needed in order to set up the machine, combining all manner of HW one might want to connect with F500HD! This is what makes it the best E2 image, IMO!

It's just *priceless*! I will try to show you how it works, what some of its capabilities are, plus how to best use it, easily. We shall also use it to **see the internal structure of E2, create a SWAP file, mount additional external USB HDD** and so on and so forth.

Before all else: 'expand' F500HD limited 'flash'!

Ferraris (and original DBs) by design have a flaw: low memory capacity, which then has to be enlarged in order to accommodate **emus, plugins, large EPG files, tens of MBs of picons, subtitles, heavy skins, tools, long channels lists** and whatnot, that we may play with...

We shall now use the USB memory stick that we prepared earlier and plugged it into F500HD's internal USB port. More precisely, its first, primary partition will be used to "expand" the F500HD's limited flash memory. Everything else has to wait and then we are free to do all manner of things, without fear of overloading the memory and making E2 unusable - having to re-install everything, when we hit the proverbial HW wall...

Originally, MMC device was installed in DBox2 by **ketschuss** and it seems **geko37** and **darkvolli** wrote the plugin. M**echatron** re-coded it for DB **(/usr folder** is moved to a USB device) and **PB Team** (**Stibbich and co**.) re-wrote the plugin and included it in all **PB images**. This **PB plugin moves the /usr/share/enigma2 and /usr/lib/enigma2 folders to a chosen USB device/partition**, so we never run out of space and our box will perform speedily and stably!

We simply enter the **PB Centre** by pressing the blue button on our RCU and we get this menu:
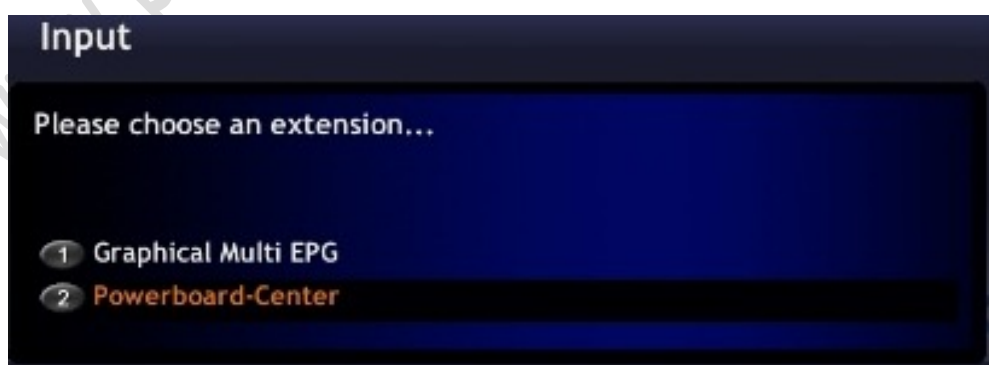
Let's see its structure and then go to find the **Device Manager**, in order to "mount" the USB stick that we already plugged into our machine (i.e. connect the HW and SW, that is to say "make it usable/accessible/re-writable", in this case)...

We prepare by "mounting" a USB device first…

Press → **OK** on your RCU → takes you to **System Setup** section of **PB Centre**, where we see many great tools, all in one place! They make the functionality of PBNIGMA VX II the best!
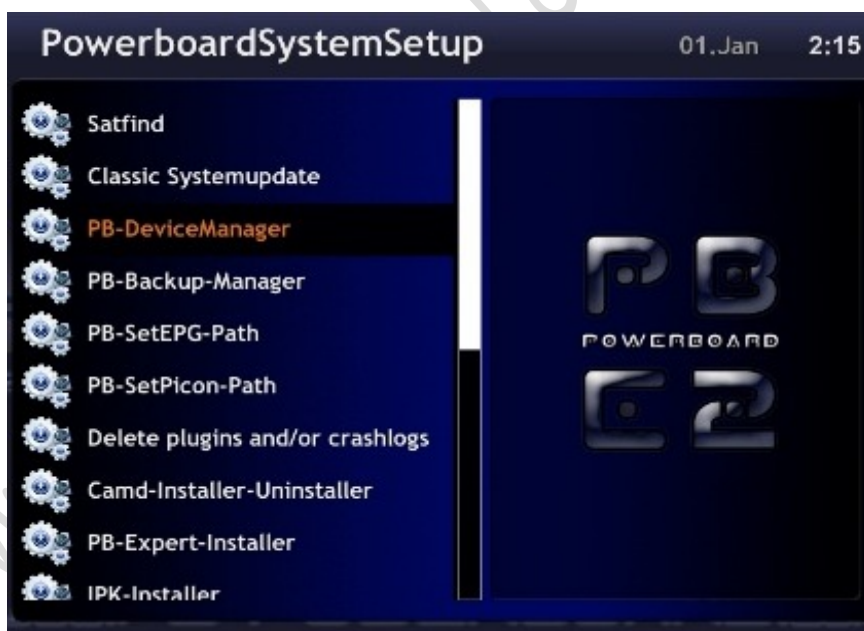
To the best of my experience with various images and plugins of this sort, we shall start with the best E2 plugin/tool of the sort!

…Device Manager…

I will show you how I mounted the 16GB Cruzer Blade USB stick, divided into 2 partitions.
The first one is approximately 1GB and the rest of it I used for the second partition.

Press **OK** on RCU, to get into the **Device manager** and there we see this menu:
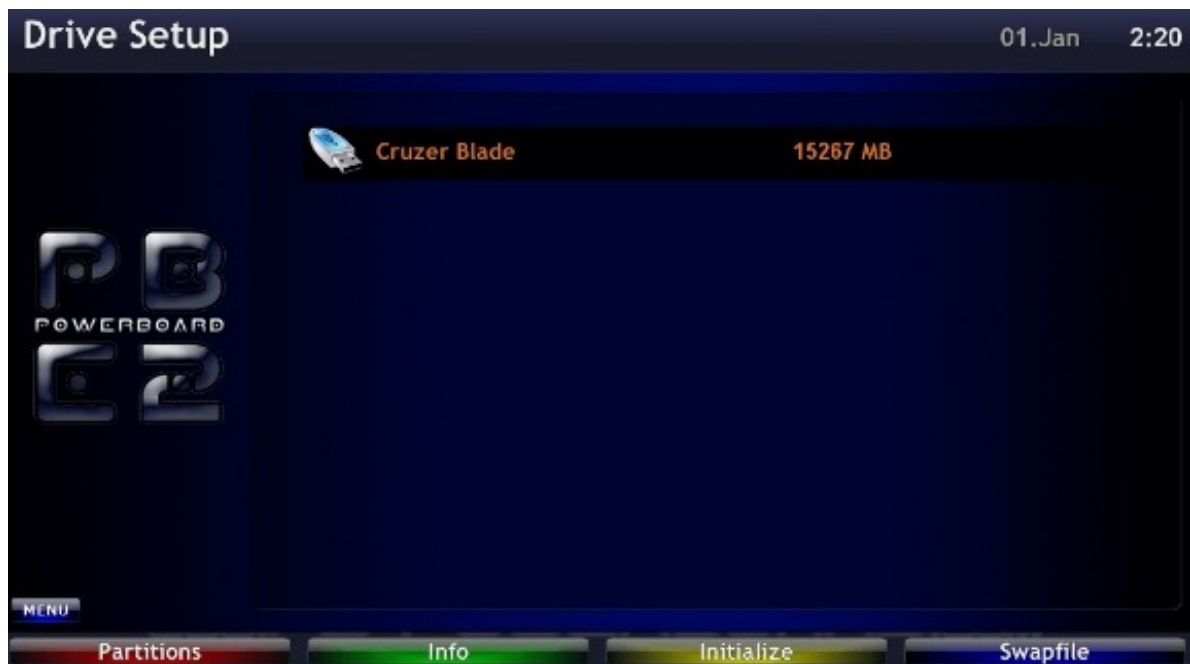
Please note the following buttons: "**MENU**" (**bottom left corner**), "**PARTITIONS**"(**red**) and "**SWAPFILE**" (**blue**), in particular. We shall, "**expand**" the receiver's "flash" via "**MENU**" button, after we "**mount**" various partitions first and then create a **SWAP** file, after that.

If one wanted to format a partition using PBNIGMA II VX, one could do that! Moreover, one has many cool options, to do it! This being a carefully and thoughtfully coded set of tools, distinguishing this image from all others, one can choose **Windows** or **Linux** formats, like EXT2, EXT3 (my choice) etc. But since I did it earlier using my PC, I do not need to do it now. However, it is good to know **one can do it internally**, using PB E2's great capabilities!

To "format" a partition use the yellow button, to "mount" a partition press the **red button**, in order to explore the device and to choose what one needs for a specific function.

I chose the first partition, in order to mount it as **/media/usb** (see below).

The second, larger partition I mounted as **/media/cf**, so I do not accidentally confuse it with the smaller, "flash extender" partition! You can see the results below.

Now, I can "expand" the F500HD flash memory to **/media/usb** (partition1) and direct/send other stuff to **/media/cf** path (partition2), with ease, using only RCU!

Flash Expander function in action

OK, now that the partitions are "mounted", i.e. accessible to E2, one is ready to go back to **PB System Setup** and "expand" to the first partition of the USB device!

Here is how: **PB Centre** → **System Setup** → **Device Manager** → once in it, the USB stick has to be highlighted/coloured, which means chosen, then press **MENU** button on your RCU…

…then, one gets the menu below and chooses the first, smaller partition, then presses the green button → **Expand to device**…
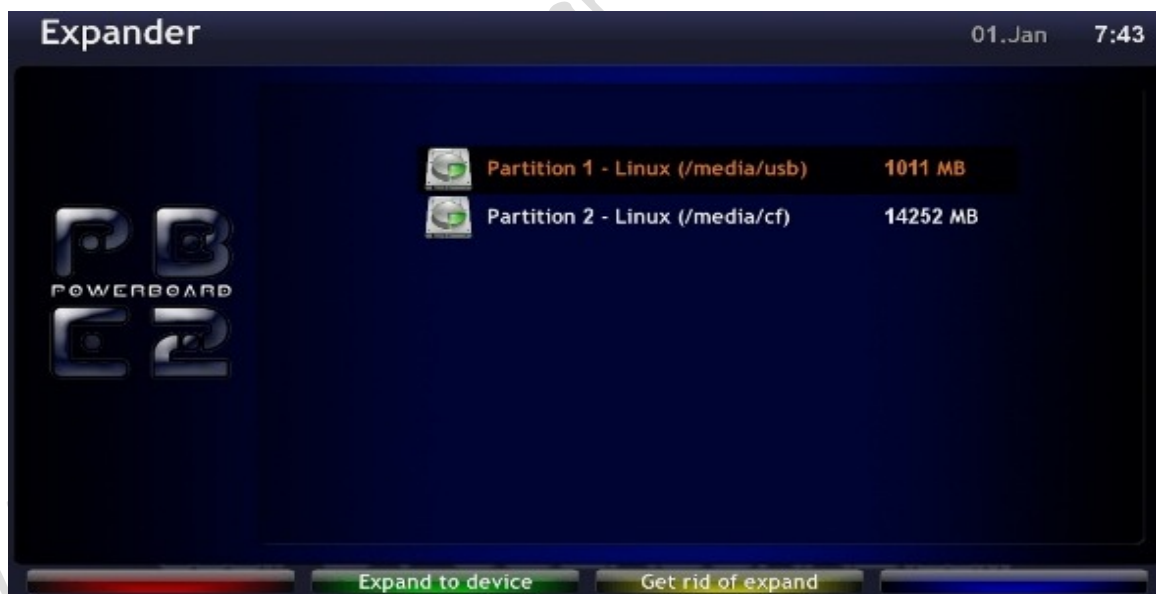
…"Expand to device" command gives you another screen, asking you to confirm, if memory serves, then a notice that it is working (moving the /usr folder to the chosen partition/device)…

Eventually (it'll be quick, don't worry!), it will notify you that it succeeded, plus that it has to reboot/restart E2, once it is finished, in order to activate the new configuration of your E2 setup… OK, maybe in not so many words but this is the gist of it all…

Swap File: surviving big updates!

We are now ready for the next step: creating a **SWAP file** on **/media/cf**.

OpenPLi Team – the originators of sources for this image - say that they do not think SWAP file is needed for normal, everyday operations.

However, sometimes one might have in excess of 40-50 files to upgrade and then it is better to have it ready, if one doesn't want to risk a failure to upgrade! One can deactivate the SWAP file afterwards, as it is so easy, with PB. You can see in these photos how to do it! So simple!

Let me just add: I have it activated at all times and my F500HD performs like a – Ferrari, heh!!! No problems whatsoever!!! At least not in this regard…

How do we do it? One has to be in (see above) **Drive Setup Menu** and press the **blue** button, when **/media/cf** is chosen (highlighted/coloured).

One is then taken to **Swap Manager** menu and these options (see below, what I chose):

Then, when I pressed the **green, "Save" button**, it gave me the window below…

Sorry, things were too fast to grab every screen that happened, at this point – so, I won't be able to list the whole process captured in the same manner… but trust me, it all works fine!

Just to add one more thing: once it is done, you will be notified that it was successful → just exit **Device Manager** and enjoy further configuring your PBNIGMA II VX… ☺

I can demonstrate all this visually, by going into **PB Centre → System Info → Memory**…

	total	used	free	shared	buffers
Mem:	137272	125880	11392	0	220
-/+ buffers:		125660	11612		
Swap:	131064	356	130708		

Then, we go to → **Image Level**…

Filesystem	Size	Used	Available	Use%	Mounted on
/dev/root	60.0M	45.2M	14.8M	75%	/
udev	2.0M	352.0K	1.7M	17%	/dev
tmpfs	64.0K	0	64.0K	0%	/media
tmpfs	67.0M	556.0K	66.5M	1%	/var/volatile
/dev/sda1	995.9M	49.2M	896.1M	5%	/media/usb
/dev/sda2	13.7G	139.2M	12.9G	1%	/media/cf
/dev/sda1	995.9M	49.2M	896.1M	5%	
/usr/lib/enigma2/python					
/dev/sda1	995.9M	49.2M	896.1M	5%	/usr/lib/opkg
/dev/sda1	995.9M	49.2M	896.1M	5%	/usr/share/enigma2

…then → **Show Mounts**…


```
rootfs on / type rootfs (rw)
/dev/root on / type jffs2 (rw)
proc on /proc type proc (rw)
sysfs on /sys type sysfs (rw)
udev on /dev type tmpfs (rw)
tmpfs on /media type tmpfs (rw)
devpts on /dev/pts type devpts (rw)
usbfs on /proc/bus/usb type usbfs (rw)
tmpfs on /var/volatile type tmpfs (rw)
/dev/sda1 on /media/usb type ext3 (rw,data=ordered)
/dev/sda2 on /media/cf type ext3 (rw,data=ordered)
Execution finished!!
```

…and finally, **Spaceview → CF**…


```
View Space of /media/cf                    07.12.2012      3:10

Execution Progress:

        Size:        13.7G
        Used:        139.2M
        Available:   12.9G
        Use in %:    1%
        Mounted on:  /media/cf
Execution finished!!
```

…and → **USB**…


```
View Space of /media/usb                   07.12.2012      2:39

Execution Progress:

        Size:        995.9M
        Used:        49.2M
        Available:   896.1M
        Use in %:    5%
        Mounted on:  /media/usb
Execution finished!!
```
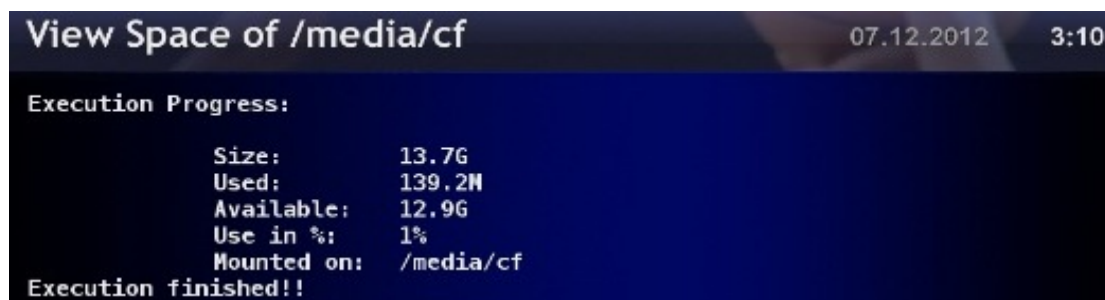
OK, that done, we shall finish setting up external devices by mounting an external USB HDD, with its own PSU (Power Supply Unit). F500HD's USB port doesn't have sufficient power to supply the large HDD that I will use (1TB WD Green Caviar).

Mount a USB HDD using PB's Device Manager

I shall use a USB HDD only to record to it. As I said before, all the other bits will go to /media/cf partition of the USB memory stick, which I plugged in internally.

So, let's prepare the USB HDD for functioning under E2:

1) exit all the menus before you plug a USB HDD in;

2) wait until PB-E2 VX tells you what it found (if it finds anything on the disk - in terms of media ["playable"] files) - press OK, so the window disappears, *if* it appears;

3) Blue Button → PB Centre → PB System Setup → PB Device Manager.

Btw, do not "initialise" your HDD under any circumstances (yellow button), as you would lose all that you have on the disk!

You can check it by using the green button– it's a useful function – for speed and consistency/bad sectors/errors!

So, I got this menu, entering the **Device Manager**:
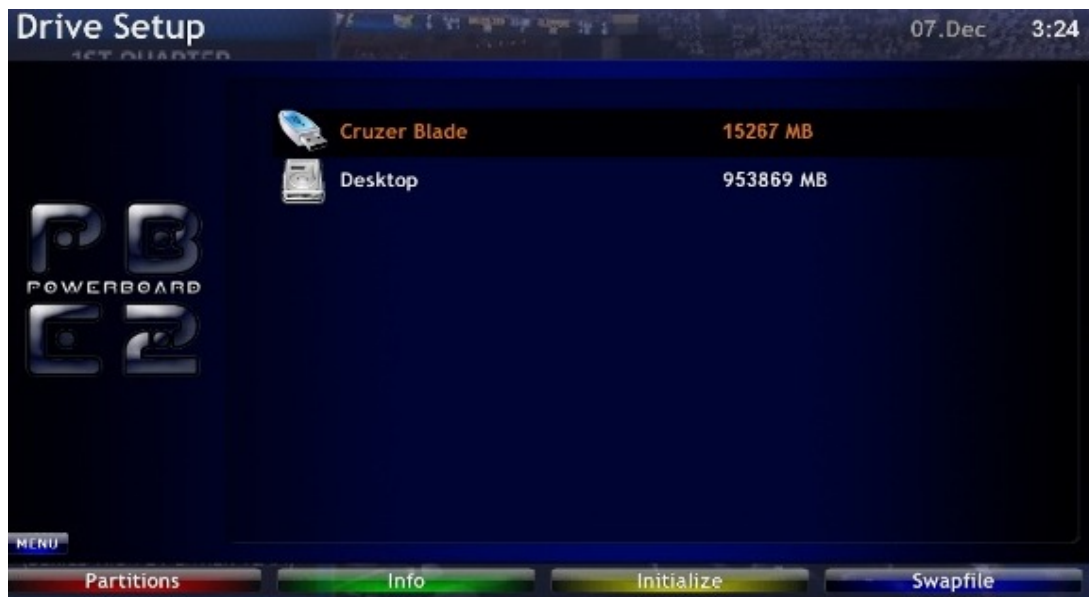
Choose the HDD (Desktop) → press the **red button** → see which partitions are present:

Now, one can choose how to mount the partition by pressing the **red button**!

I chose the first option, i.e. I mounted the partition by pressing the **red button** = "**OK**". It became **media/hdd** but it is mounted as **/dev/sdb1** (if you press the green button to check it, you will see as which device it has been mounted. You will get an **error message** but don't worry, don't despair, keep your cool. This is what you need to do, in order to sort it out…

One must **edit** the E2 **fstab** file now, in order to add the USB devices (USB partitions and an HDD partition). How do we do it? By using **FileZilla Client**, we enter the F500HD's PB E2 and in **/etc folder** we find the **fstab** file to edit.

How exactly do we do that? In a few paragraphs below, I will demonstrate in detail…

For now, let me just add that I edited the /etc/fstab file by adding the following 3 lines:

/dev/sda1	/media/usb	auto	defaults	0 0
/dev/sda2	/media/cf	auto	defaults	0 0
/dev/sdb1	/media/hdd	auto	defaults	0 0

One must now reboot (Full restart in the Main Menu → Power Management). Sometimes several times… until you have these results:

Find them in PB Centre → System Info → **Image Level** - a list of devices/partitions:
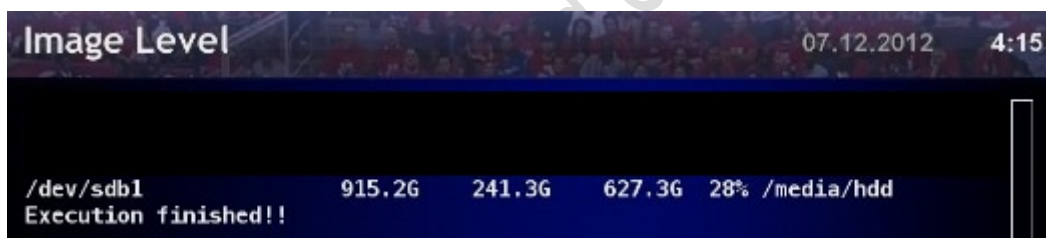
In PB Centre → System Info → **Show Mounts**…
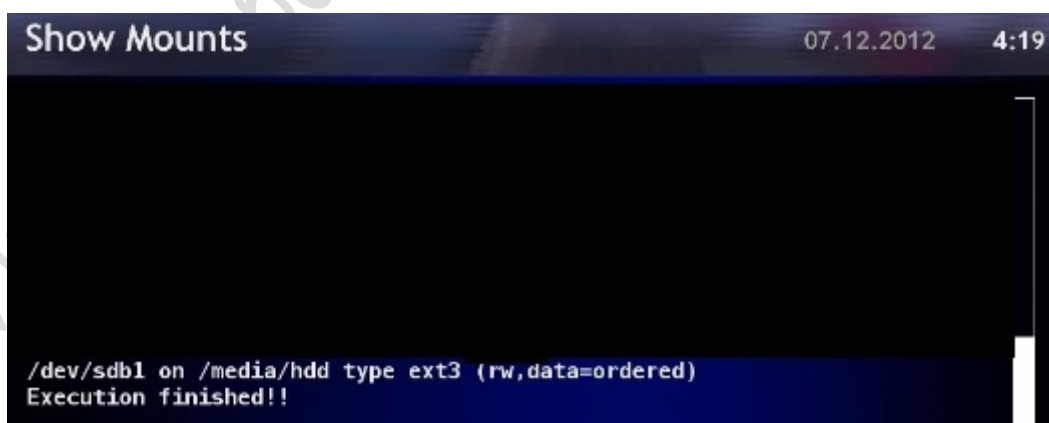
Sometimes the "check" function will return "Error" message but the device should now work!

Main Menu → Media Player → "Desktop" can be seen, it can be accessed and films in various formats can be reproduced (although some with DTS sound can't be heard, but the blame, it seems, lies with the OpenPLi, primarily – apparently they are working on it).

Here is the proof – the content of the USB HDD's (/dev/sdb1) only partition:
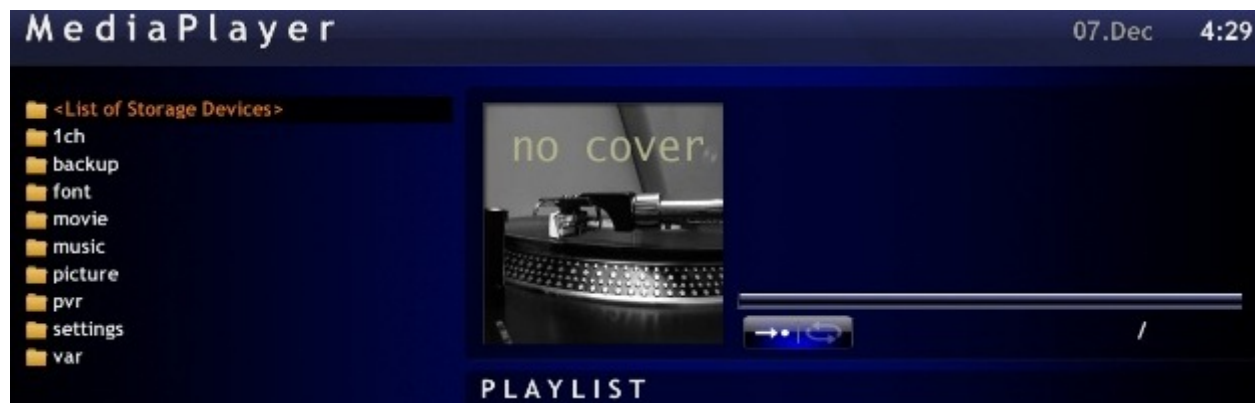
OK, now we have to enter E2 via FTP, in this case **FileZilla Client**, in order to make some folders and so on. Moreover, I need to explain the major functions in FZC, to make possible what I mentioned earlier – **editing the fstab file**, as well…

How to work with FileZilla Client (FTP)

To connect one's PC with one's box, *via* **FTP**, one can use **FilleZilla Client** ("FZC" further on).

Download it, it's *gratis*, (http://filezilla-project.org/download.php), install and start it. . Put in your **box's IP to the Host box** (something like 192.168.x.x), use **root** as **username** and **dreambox** (or whatever it may be) as **password**, port **21**, then click on → **Quickconnect.** Later, you will only need to use **Reconnect**, under **Server**, since **FZC saves this data**.
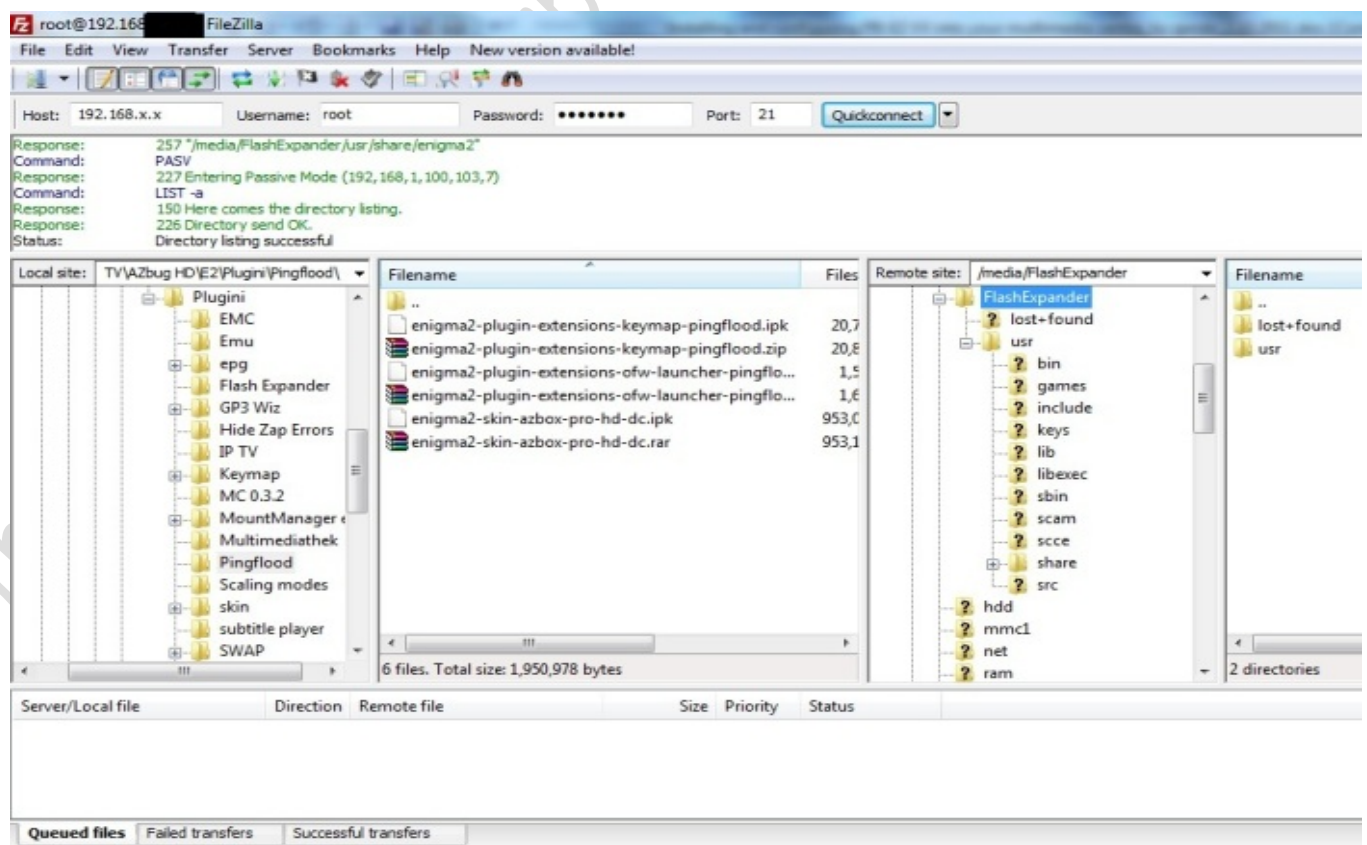
Setting it up for my laptop, I choose **Edit → Settings → Interface → Widescreen**. That gives me 2 main windows [laptop and Ferrari], each of which has 2 more windows: a tree and a view of a chosen folder. Then, it is easy to *drag & drop* from one to the other, in speed...

Drag and drop means click on a file or group of files, to choose it/them, then left-click on them and do not let go! Drag it/them to the folder of the other machine and drop/let go.

You will see if the transfer was successful in the top part of FZC, as well as the bottom one.

To automatically start **Notepad++** application on your PC, when you choose a file **to view or edit** (by right-clicking on it → View/Edit) in FZC, one goes to: FZC → Edit → Settings → File Editing → Use custom editor → find the Notepad++ executable file.

In my case, it is (Windows7): "C:\Program Files (x86)\Notepad++\notepad++.exe".

One might have **to create a folder**, occasionally: right-click on a folder where you want to place it → Create directory → give it a name → OK.

Sometimes, after that or a transfer, one needs to do the so-called **CHMOD** command to a folder and/or some or maybe even the whole of its content.

How does one do it? One must right-click on it → **File Permissions → 755 → OK. Reboot** your F500HD, if necessary, **for the changes to take effect**.

A few simple tasks to complete the devices setup

In the PB E2 image there are 3 easy ways to set up recording, picon, subtitles and EPG paths.

1) MENU → Setup → System Settings → **Recording, EPG and Picon Path**.

2) Blue button → PB Centre → System Setup → **Set EPG Path** and **Set Picon Path** folders.

3) One might also configure some of those paths in some skins, like **HD Glass** skin (picons etc.) or in some plugins themselves, like **CrossEPG** or **DDsubtitle Player**. More later...

In that case, one must be **very careful, so that all those paths are the same**! Plan it, so you can execute it in a consistent manner, insuring a well organised/structured E2!

So, **I created picon and subtitle folders in the appropriate location** (/media/cf/) or I merely **chose the /cf folder** for the data to be stored there (like EPG) → **Save** (green).

Naturally, recordings are going to /media/hdd/movie folder or a specific sub-folder in it.

After one sets up an appropriate **picon path in PB System Setup,** "Restart GUI" (Graphical User Interface) is mandatory...

OK, moving on now, to **sending a channel/"settings" list** (that somebody already made for us and posted on the net) **to E2** and after that we can finish the major configuration tasks...

6) Channel list

A channel list can easily be found on the net or in blue button → PB Centre → Addons. I use Don@'s, as I am from EX-YU and those are the first Favourites they put in. You may need some other list to suit your needs or you can edit such an up-to-date list yourself... How?

Edit a list

Open **DreamSet Editor** to edit the list according to your needs. One can easily delete or edit the names of whole satellites or a number of transponders or channels. One can create favourites folders, so they correspond to what you can't get where you are. Or delete the ones you're simply not interested in, then re-order them as you want them to be etc.

How exactly? Well, place the cursor on the icons there - it's all more or less self-evident...

When you right click on any satellite or transponder or channel (see below), you will see many possibilities... It's a well written editor for this purpose, so just enjoy messing about!
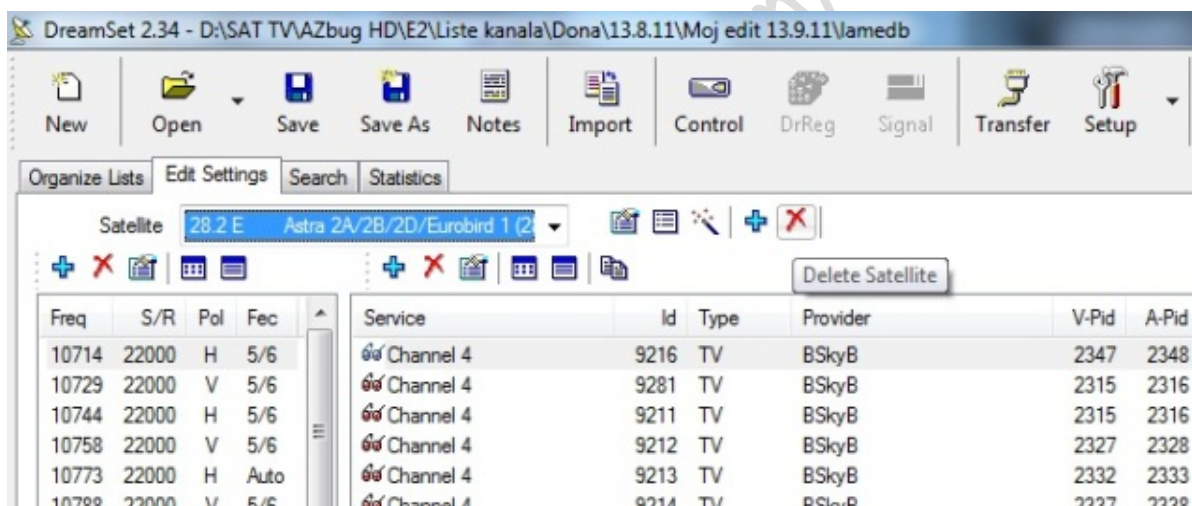
Save your editing, after you're done, then close DreamSet.

Mind you, one can upload lists, using the editor, too... However, I use another one, for that task...

Upload a list to your box

To do this I use **DreamBox Edit**. Open it and configure it properly. See the image below.

In "Options" one may choose one's PC folder which contains picons and a folder to send it to in E2. Cool but **FZC** does it faster, I think. DBE first compresses the picons, transfers the file to /tmp, then decompresses it and sends it to wherever you chose to send it, I think...
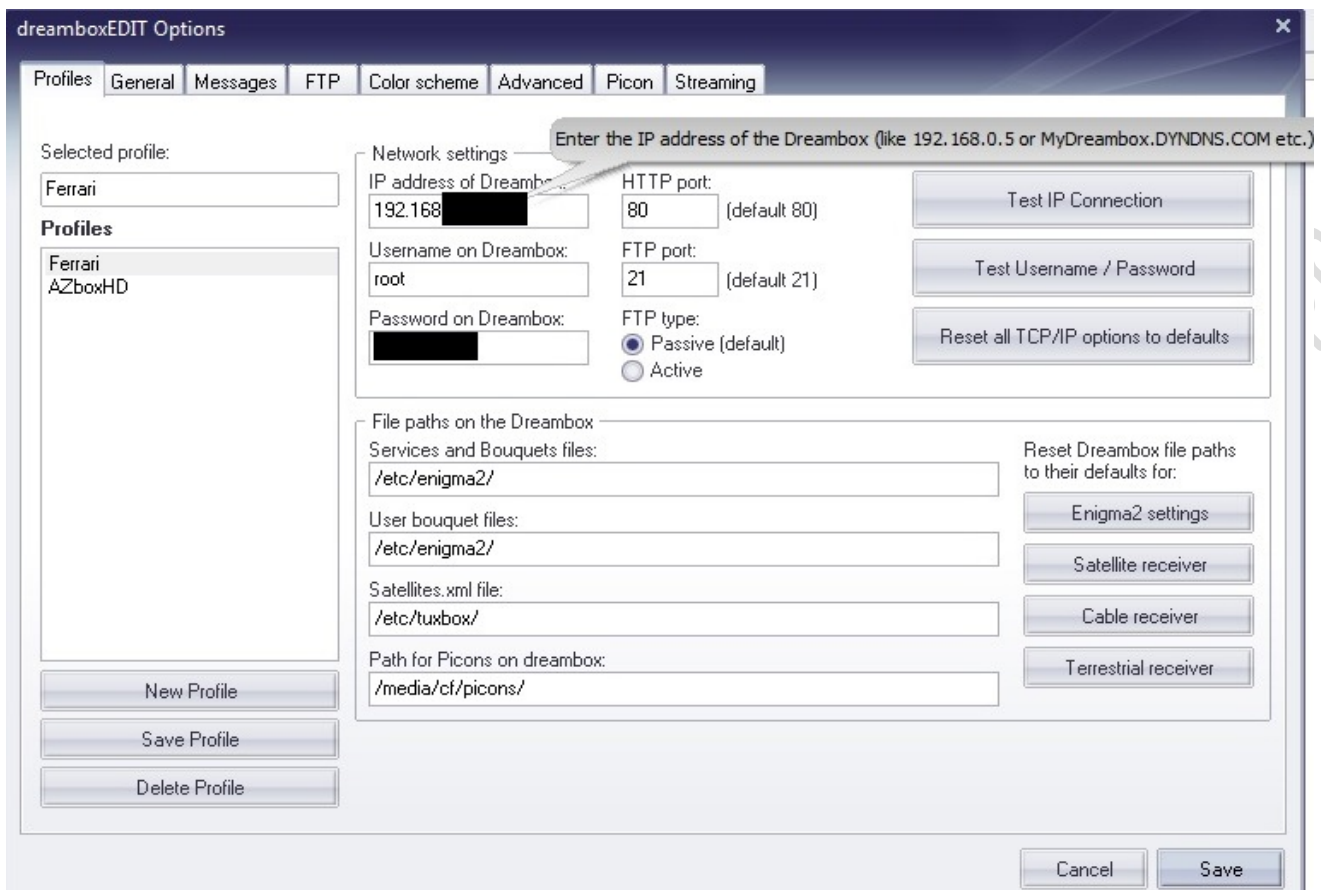
Then → Open → find a list on your HDD → FTP → choose according to your needs (send picons or not, to the chosen E2 picon path folder, for instance) → the list itself goes quickly.

When it is done, give → "Reload settings" command in DB Edit, in order for the newly uploaded list to become active/accessible. Restart E2 now, using RCU.

Tuner configuration

I do this now, and not before, because I have to go only through the satellites I need!!!

So, save yourself some time, by investing a bit of time in editing a list, according to your needs, delete everything you don't need, re-order it etc.; put it in E2, reboot and now go to…

MENU → Setup → Service Searching → Configure Tuner → "advanced" for me, since I use 16 LNBs **via DiSEqC 1.1** protocol, **16in1 switch** for 19 satellite positions, caught by T90 dish.

Then, one changes _only_ the following parameters, from the whole list:

-LNB [1 → 16]
-DiSEqC mode [1.1]
-Fast DiSEqC [yes]
-Command order [uncommitted, committed, toneburst]
-Uncommitted DiSEqC command [Input 1 → 16, as above, it must correspond to your LNB numbers].

Here are some images of my "extreme" setup, so it's more 'concrete' for the 'less informed':

Here are the extreme positions, so you can see a solution to the „off the chart LNB problem"

I have 12 Twin LNBs (2 cables coming out of them, feeding 2 tuners) and 4 Quad LNBs (4 cables potentially coming out of them, feeding 4 tuners but I only use 3 at the moment).

Hence 3 switches: 2 x 16in1 and 1 x 4in1, as you can see below...

A lot more info on the topic you can find on the great PB forum ☺

http://www.pb-powerboard.com/board/index.php?showtopic=85684

If it is a **simple setup - up to 4 LNBs** - then choose **DiSEqC 1.0** protocol.

If you have a **DiSEqC motor** you will need either **DiSEqC 1.2 or USALS** protocol.

I will not cover those here, since I could not test it myself and because there is a lot of help to be had on the forums I mentioned earlier, with step-by-step guides, as to how to setup a DiSEqC motor using either DiSEqC protocol 1.2 or USALS.

Good luck with that!

We're now ready to move on to...

7) Configuring an OpenPLi E2 generally…

Since I didn't use the Wizard fully, at the beginning, I must sort out those bits now…

I will simply use photos/images/captured TV screens on my laptop (remember, Open Web Interface plugin?), as they "tell" many words, all at once! Sometimes I will also explain why I chose a specific option…

Main MENU button on your RCU → Setup → System Settings → see the image below. As you can see, the OpenPLi E2 has more options than standard E2 and once inside those options one can see even more possibilities to set it all up to one's liking/needs… Let's go!

Audio-Visual

This is to be sorted out according to your other HW - your TV, various connections…
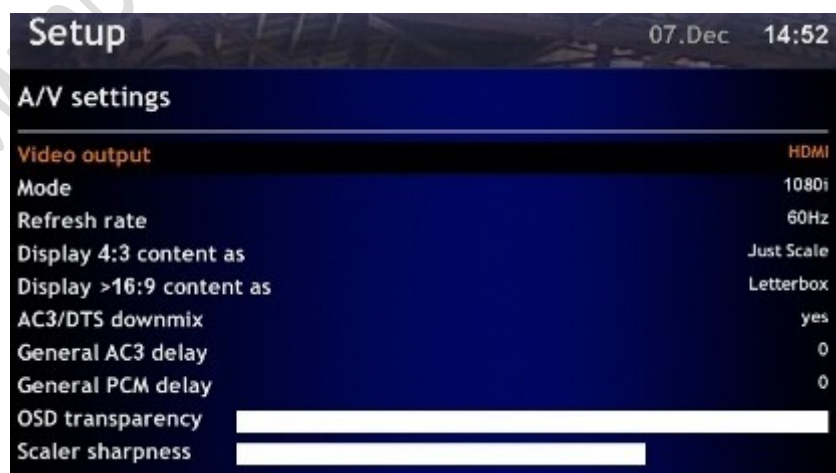
Use **<** and **>** buttons on RCU to change the values, then save them with green button (OK)! **Exit** button, when done and we move on…

Other settings

Here you have a number of options. I disable the background scanning of channels, for instance. If you have an additional DVB-C or DVB-T tuner plugged into F500HD USB port, change the priority to your needs and so on… **Green** button to save, when done, then EXIT…

Setup		07.Dec	14:59

Other Settings

Setup Mode	Expert
Enable teletext caching	yes
Alternative services tuner priority	DVB-S/-T/-C
Preferred tuner	auto
Disable background scanning	yes
Create more detailed crash log	yes
Include EIT in HTTP streams	yes
Include AIT in HTTP streams	yes
Include ECM in HTTP streams	no
Descramble HTTP streams	yes

GUI – Graphical User Interface

Setup		07.Dec	15:05

Graphical User Interface

Show animation while receiver is busy	yes
Show positioner movement	no
Enable multiple bouquets	yes
Multi-EPG bouquet selection	no
Alternative numbering mode	no
Change bouquets in quickzap	no
Hide channel list in radio mode	no
Action on long power button press	show shutdown menu
Action on short power button press	Standby
Position of completed timers in timerlist	at end
Infobar timeout	6 seconds
Show event-progress in channel selection	Progress Bar Right
Show channel numbers in channel selection	yes
Show infobar on channel change	yes

Cancel	OK	

I don't have a motor, for instance, so I don't need to see "motor movement", I want infobar shown a little longer, especially since I like using HD Glass skin, which is loaded with info of all sorts etc.

Below is the second part of GUI settings, where I choose to "hide zapping errors", which can be annoying and **OpenPLi Team** have coded it wisely, as usual, to give us this option, just like the option to supress the background channel scanning...
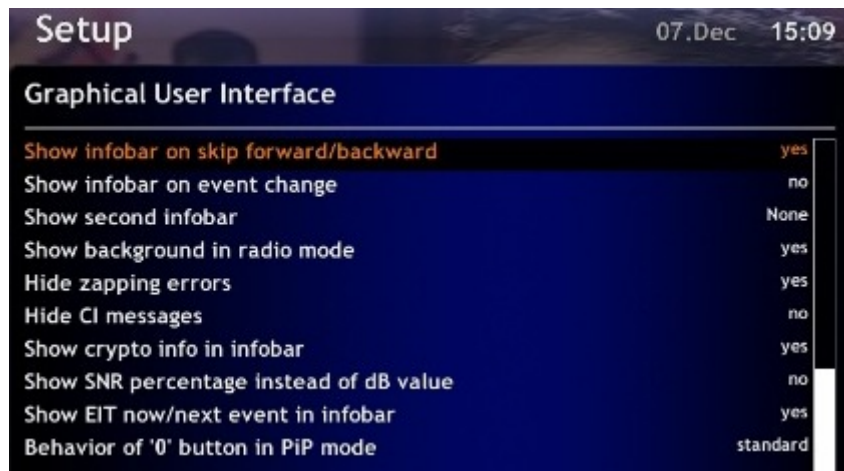
EPG

Here you can set your preferences, depending on the satellites/packages you get and follow...
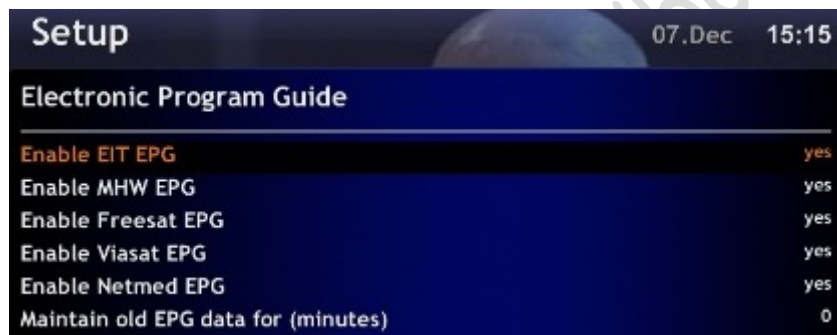
I'm a maximalist, as you can see, hence the Expander, so I can activate all of these, hehe...

I will only show the menus in which I actually change some options, so going to subs now...

OpenPLi advanced subtitles

Well coded, as I mentioned, it gives more options to manipulate various types of subtitles...
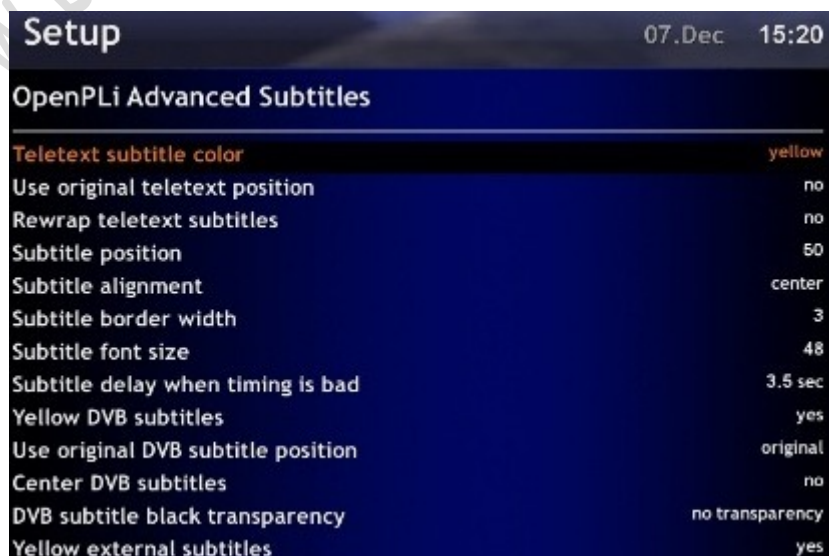
Of course, some of these will be working together with some independent plugins, like CrossEPG, DDsubtitle Player and so on... More later...

Auto Language Selection

This needs to be setup according to your households needs – try various options and see what works best for your family's needs...
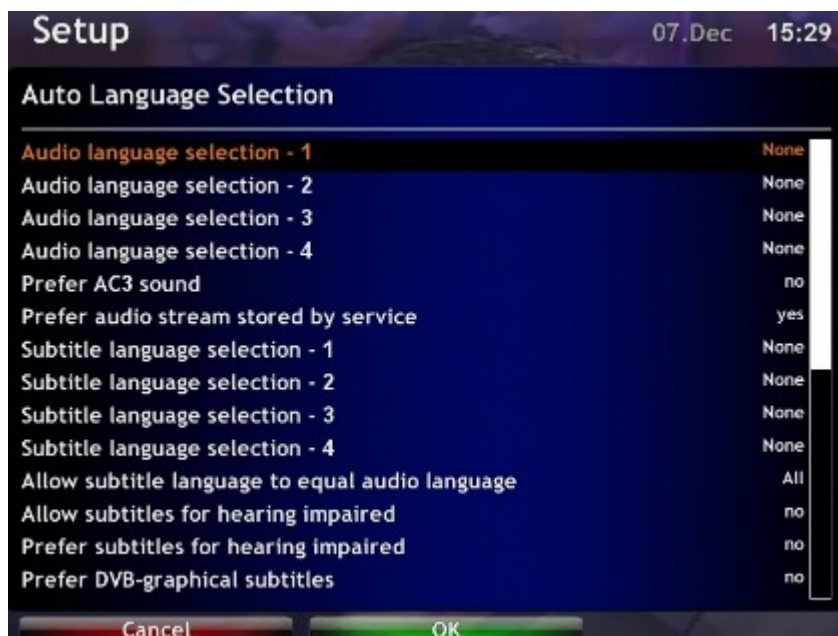
The new and interesting thing about this is that you can mix and match subtitles, sound and language settings to best match your needs... Think about it and try...

I usually skip the **Hard Drive** part, as I prefer Device Manager options in PB Centre!

Network Configuration

Here you will enable your F500HD's E2 to connect to the Home Network and Internet.

I already explained some parts at the beginning of this guide, so I won't repeat it.
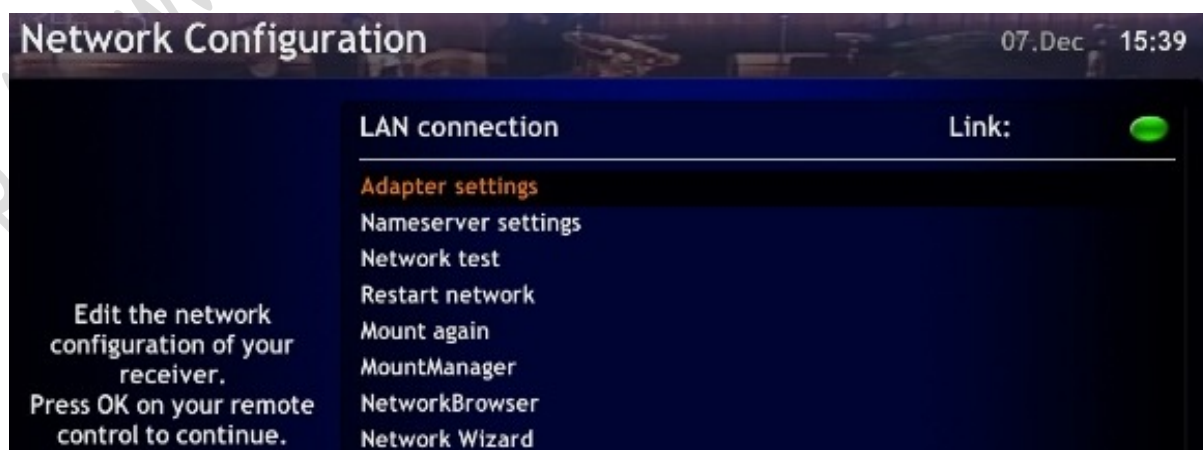
However, we will need to speak more about streaming from the Home Network, later on. I will explain how to "mount" various network drives, like NAS or PC/laptop…

I have a **Synology NAS**, which has a Linux OS, so it is using a better, superior, so called NFS protocol for streaming A-V content from NAS to a MMC. When I enter this option I get the following results of the neighbourhood scan:

One chooses one of those shared folders, edits its name and presses OK to activate it. It is that simple with Linux. Windows protocol (CIFS) is a little bit more complex. More later…

If you did it well you may get a result similar to the following image of my setup (press the **green** button in this menu, then **Mountpoints management**):

As I mentioned, I will come back to many more details, so anyone can set up their Home Network in various ways, for various OSs and using different techniques... 'Till it works! ☺

Just one more photo, before we move on, so you can see where you can do it "manually", as opposed to an automatic scanner built into the E2, as seen in the previous photo:

It's in Mount Manager → Add New Network Mount Point:

Enable it, give it a name (like "Film"), choose the protocol (NFS or CIFS), write the address of your server, then the name of the shared folder (for instance "Videos") and → OK!

Speed up response times for your RCU commands

Choose **Input Devices** → **dreambox remote control (native)** → **green button** on your RCU, in order to edit those options, so you can speed up your RCU commands/response times → Yes.

Response times can be decreased from default values to, say, 30, msecs for the first parameter and 100 msecs for the other → green button → Yes. And you're flyyyyiiiinnggg...

Most of the rest of menus are self-evident and do not need explaining… muchly…

However, one or two do and I will give you the commands to set it up now:

Recording Paths
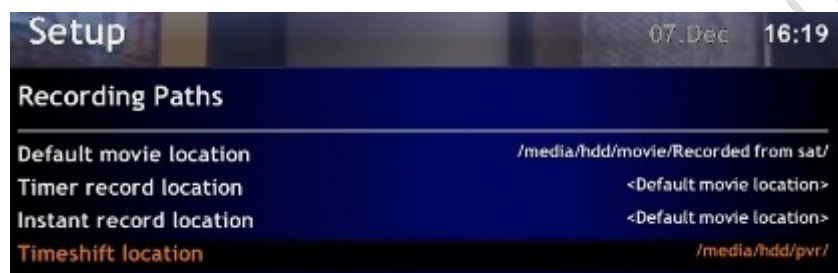
To change the "default path" (of your "movie location") to what you want it to be, according to how you setup your additional HW, as described above, in Device Manager section, press OK button on your RCU, then → MENU on your RCU → see the photo:
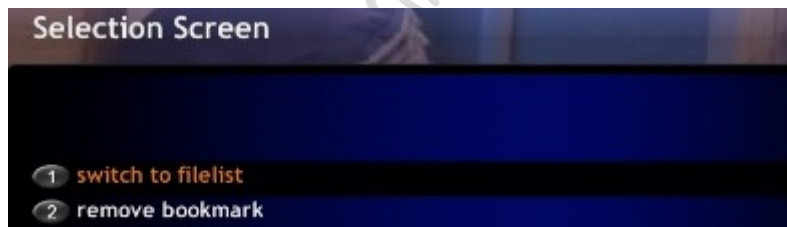
Press OK to enter filelist…

Press OK on RCU to get to a higher/parent directory and choose a folder to record to by default, like in this photo…

Press the green button (OK) to save, then do this procedure one more time for the "Timeshift location" → before exiting the "Recording Paths" menu - → green button to Save!

Voila! Sorted the E2structure/devices according to your specific needs! Moreover, while doing all this you will understand it all better and remember what goes where, so all's good... That is mostly – it! Last remarks in this section...

Service searching is advisable, to get a more updated channel list. It's simple, just let it search through all your satellites, overnight, then press OK in the morning and EXIT...

Try finding **Reinhardt's xml file** on the net, with up-to-date list of transponders to scan, if you're not sure the scan will get all the channels, *via* **network scan** option being "on" etc....
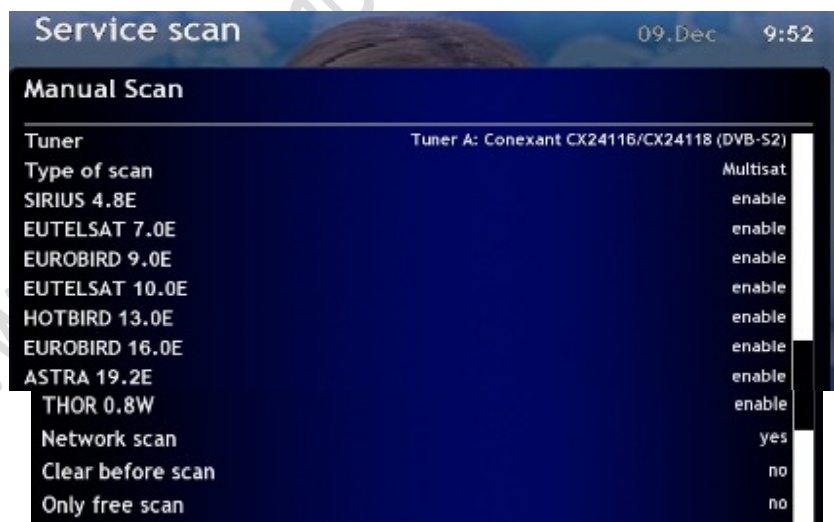
Softcam will be **controlled** *via* **PB Centre, not in this menu**... We'll come to it later...

SW update is used occasionally and there's nothing to it. But if you haven't updated for a while, activate the **SWAP file**, as discussed above, if you suspect there may be many updates. Also, there is another similar function in **PB Centre**, directly connected to **PB Team**, the writers of this specific E2 flavour! Go to: blue button → PB Centre → PB System Setup → Classic System update → when done, press OK → EXIT → Restart GUI (in PB Centre)!

8) Let's install stuff galore!!!

Now, we can continue doing the really cool stuff, since we "expanded" the flash, hehe...

Earlier I mentioned the awesome support of PB Team. Well, **it's all in the wrist**, lads and gals! With a flick of a button, you get to the good stuff that makes this hobby so interesting!

First, let me tell you: a long time ago, when I used a PB E1 in my old DBox2, for the very first time, this was the sweetest part - a revelation!!! Easy to use and really well sorted out, good quality support server from which to download and install all manner of things, directly into your box, without the need to mess with it all manually, via FTP and Telnet etc. Very, very cool!!! And if you have a clone – these are safe, since checked and sorted out beforehand!!!

We have quite a few plugins and other stuff to choose from (so they had to be divided into sub-sections: **system plugins, cams, settings, skins, extensions** etc.), to download/install straight from the PB server, then configure those to serve our needs... Where shall we start?

Press the RCU blue button → PB Centre → AddOn Manager →Bob's your uncle, heheheeeee…

Installing directly from PB server/net

Just so you know: these lists keep changing, as PBNIGMA keeps changing, plugins get better or worse, sometimes they stop working with a new image etc. If you can't find it here – and in another place I will cover shortly - internet is your friend!

To install or uninstall something from these lists, **one simply presses the OK button,** once you scroll to a plugin → just **confirm** and **when "Done"** → **OK** again. *Voila* ! Best advice is to **"Restart GUI", after each installed plugin!** Do it slowly – be safe!

Green dot means "it is already installed in E2" and a **blue dot** means that there is an update for it available. **Red dot** = "not installed".

These will be my choices/an "example", which you do not have to agree with at all, of course…

Settings: I get a channel list from the net/good forums – and it is only a base, which I then re-do, according to my needs, as I mentioned earlier. If you have a simpler setup, one of those offered here might be completely satisfactory…

System plugins: here, I only uninstall **cablescan** and **wirelesslan**, as it is not possible to get **crossepg** nowadays, from this section of PB AddOn Manager.

Drivers: usually for new HW, like USB DVB tuners, cable or terrestrial… If you have one of those, new ones, not included with E2, then here they may be. Also, USB serial drivers for USB smartcard readers, I presume…

Private: nothing much here…

Skins: **One Key Blue** is great by me! If one would have thought that I am undemanding in this department, one would be wrong! It has **PiG** (Picture-in-Graphics), so when you're browsing in the channel list you still see your TV screen! It also has integrated ECM info at the bottom of the screen, which works fine with CCcam and OSCam that I use.

And just generally speaking, it has a great balance - between scarcely any info and way too much info! I.e. only the essentials, hence not overwhelming the screen with superfluous info, like some other skins or everything one can think of being put on the TV screen…

Alternatively, when I feel like 'maximum info', I would go for **HD Glass skin**, with heaps of stuff right up in your face and zillions of options to play with – but slowdown is possible, then!

However, HD Glass is in **extensions section**, nowadays and not here, strangely…

Picons: those are small TV channel **logos**, to identify a channel by and make it all a tad funkier, hehe… They should show in your skin, next to the name of a programme that is on.

One can also find them on the net, put a whole bunch of them together (some 60+ MB), thanx be to those who collect them and send them to the box manually, as mentioned before (FTP)!

If you're going to use **HD Glass skin**, loads of them are already included in it, so you do not need those put here. I might cover this in the next guide version, if I find the strength…

Modules: specific stuff for experts, to put into kernel itself – leave this be…

Extensions: this is the most populated section and some of the most important stuff is here! For instance, **cccaminfo** - if you install CCcam - if one needs more info than OneKeyBlue, OpenPLi HD and HD Glass skins show; **cooltvguide** - presents TV programme/film info and EPG really well; **dreamexplorer** - like Windows Explorer, with capacity to execute scripts; **dvdplayer** - to play DVDs or DVD folders on an HDD; **enhancedmoviecentre** – for extra info about films etc.; **mytube** – obviously…; **oscamstatus** – obviously…; **quickbutton** - to assign various functions to different buttons, according to your preferences; various **passwordchanger** extensions– for an obvious purpose… etc. etc.

Here's a little peek into the menus:

...and a little later...
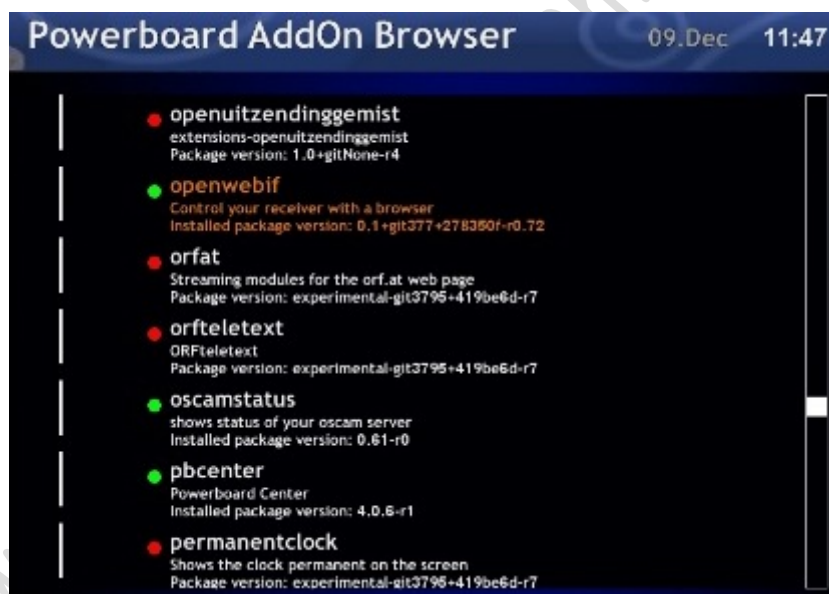
Security – **firewall**, if you really need one…;

PLi – **softcamsetup** is not really needed, as it is handled by the PB Centre;

Camd: cccam 2.1.3 (I use this one, when I use CCcam, as it is working well with keys, allegedly better than other, esp. latter versions), **cccam config, oscam 1.10** (an older but stable version, if it works with your smartcard), **oscam config slot 1.**

By the way, you can update components one by one, in this section, so you have more control…

One can also add more stuff, from Main Menu → Plugins → **Download plugins**, where **Red button** will remove a plugin and **green** will give you another menu to choose from a list…

Installing from Plugins

Some of the plugins are already in this menu from the previous set of actions but some are just here, in this section. Let me demonstrate on a specific plugin, which sports lovers would appreciate a lot, I think…☺

However, here we are interested in **Software Management** plugin:

We get this menu and go to **Advanced options** at the bottom of the list:

We choose **Packet Management**:

Finds a wealth of add-ons, so many packages, it's crazy... But great! Like **Sport Portal**!

One must spend some time here, searching and enjoying the hobby... Chillax, it's good fun!

When the globe next to a package is coloured – it is already installed, of course!

You will find various **alphabets** for various **languages** ("local..."), many different kinds of **files for certain plugins**, like **1Channel** ("**subprocess**" for python2.x), more **settings lists**, more **skins**, and a lot, lot more – see if you can find it here, with some patience... ☺
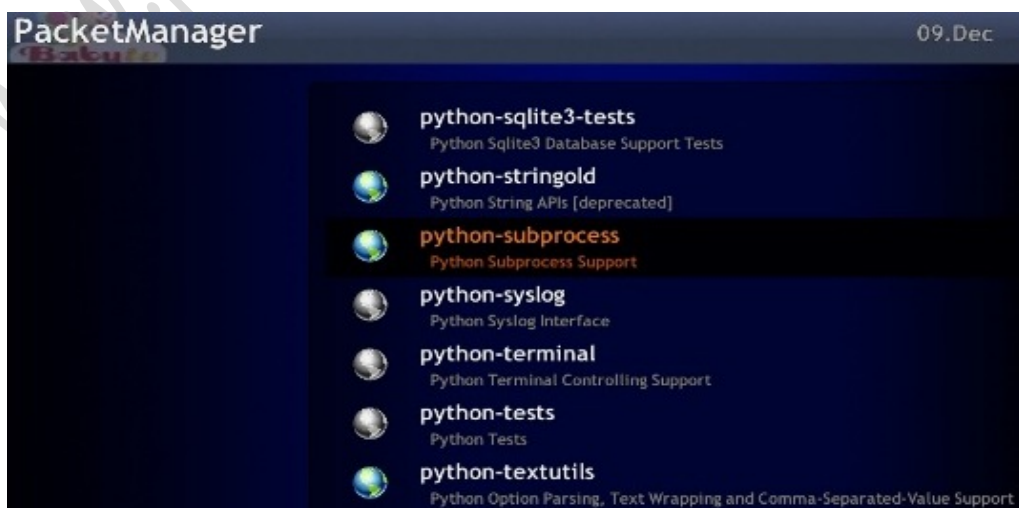
HD Glass skin is hiding here, for instance, not where most skins are:

Like above, you can also uninstall a component, the same way you're installing it...

One more function that is similar is in **PB Centre → PB System Setup → Expert Installer**, where all this is organised alphabetically, albeit not in English alphabet, hehe... But because it is broken down in smaller sections it will be easier to go through all of them. You will be able to perform similar tasks to the just explained manner of doing things in this section...

I also **add stuff manually from my PC**, like **CrossEPG**, if it is not included in PB Centre, **DDsubtitle Player** by **Damir** and **1Channel**, film streaming plugin direct from the net, by my young and promising colleague **Subixonfire!** Here is an *example* of how that is done...

Installing an ".ipk" package

Get a file on the net, transfer it from PC to F500 HD. Use **FileZilla Client** to do that, as explained above, in section 5. Transfer the **.ipk** file to PB VX II's **/var/volatile/tmp** folder:
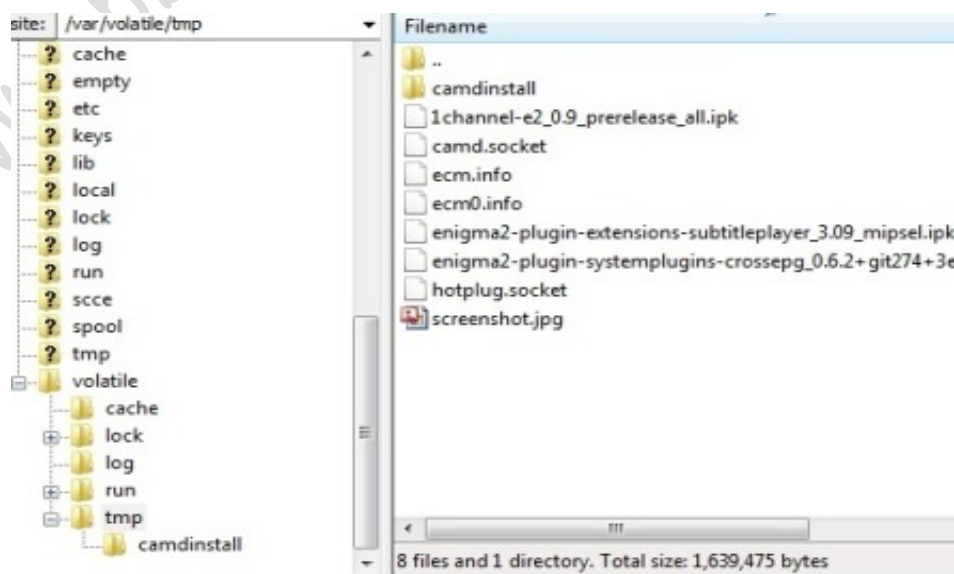
As you can see, I transferred 3 .ipk files that I want to install to F500HD with PBNIGMA!

Press the **Blue button** on your RCU → PB Centre → choose **IPK-Installer**:

You will get this window, if the file is in **/var/volatile/tmp** folder of your PBNIGMA VX II:
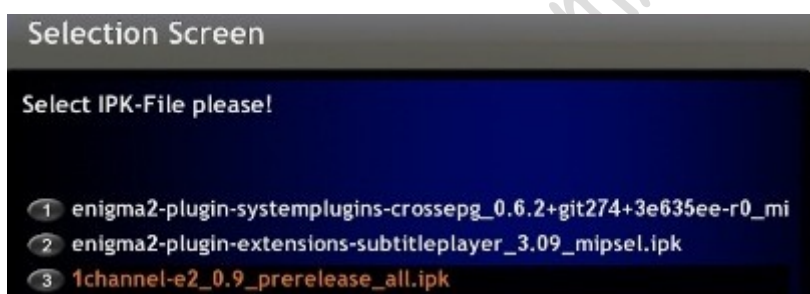
Choose one of them by pressing the **OK** button to install it:
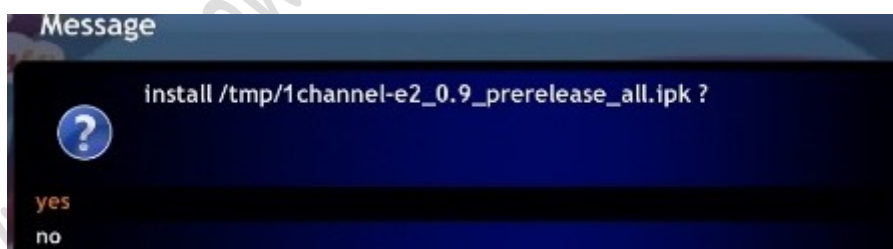
Confirm it:
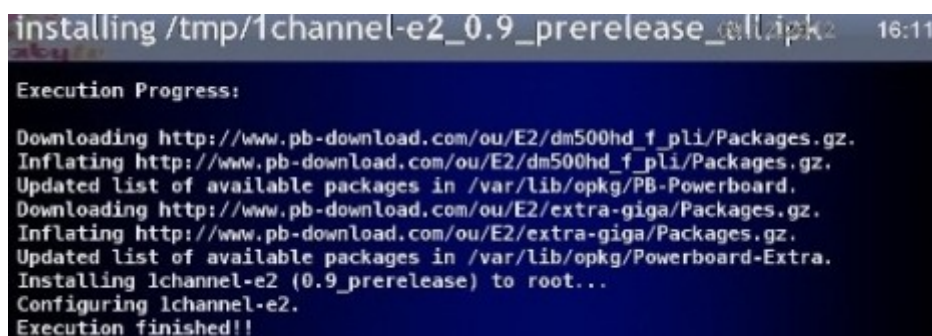
When it is done, in PB Centre → **Restart GUI**, so the plugin becomes available. You will then need to configure it, like with any other plugin installed like this, before using it…

9) Let's configure this "stuff galore"!

Sure, now we can install loadsa stuff and we do not have to worry about installing too much… But we must worry about configuring it properly!

First, I will write about the one we just installed, then about two of the crucial ones for our needs ("cams") and then about CrossEPG and Subtitle plugin by Damir, some of the best plugins for E2!!!

Configuring 1Channel plugin by Subixonfire

So, after reboot, we get this screen in Plugins:
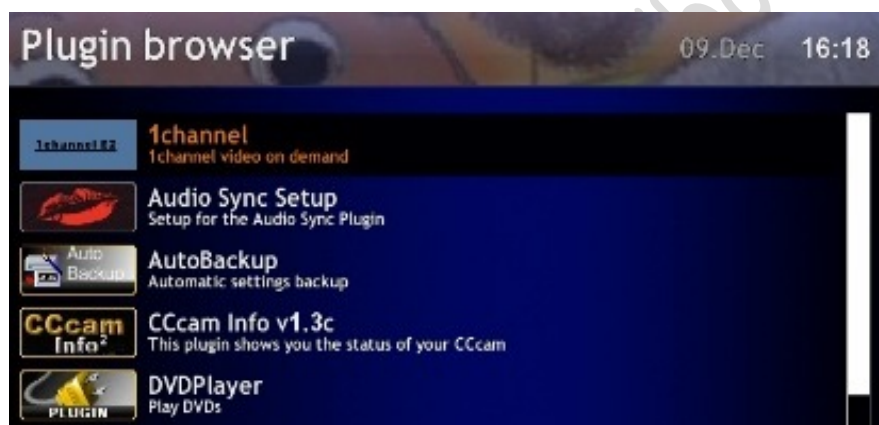
Since I already installed "**subprocess**" file for **Python 2.6**, which is the version used in this PBNIGMA (see above), and since I already made **1ch folder on my HDD** (used for "**buffering**" – see below)…
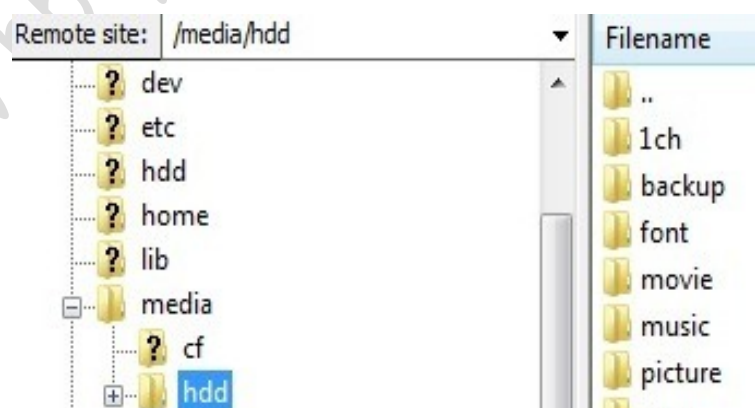
…we can try to stream something from the web…

Like a film, randomly chosen, just to see if it works…
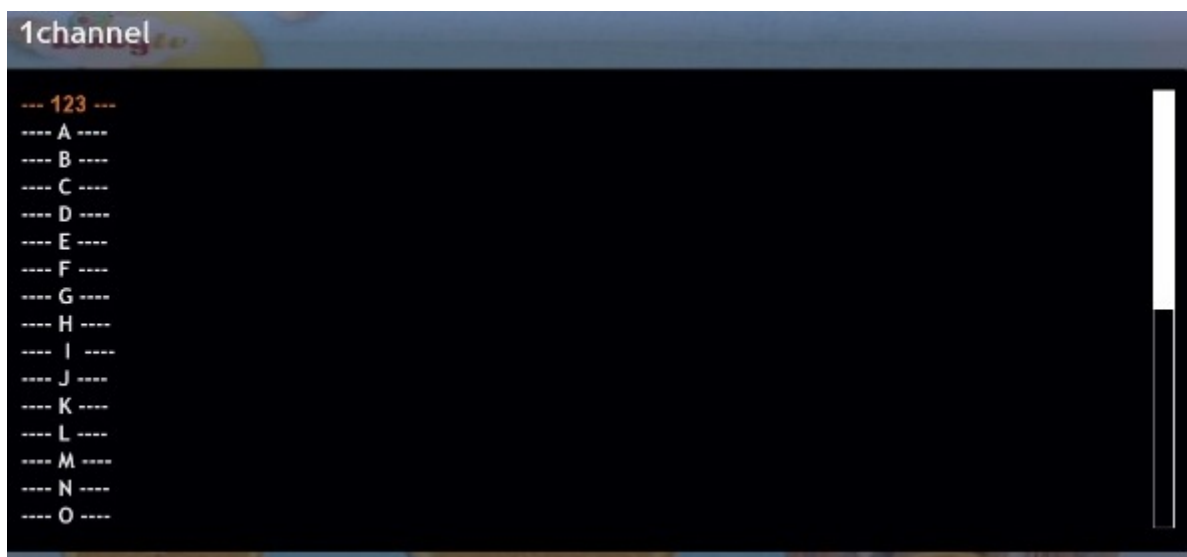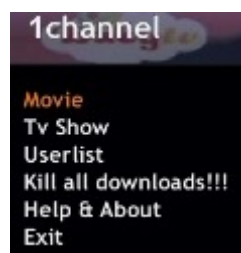
We choose, say, A…
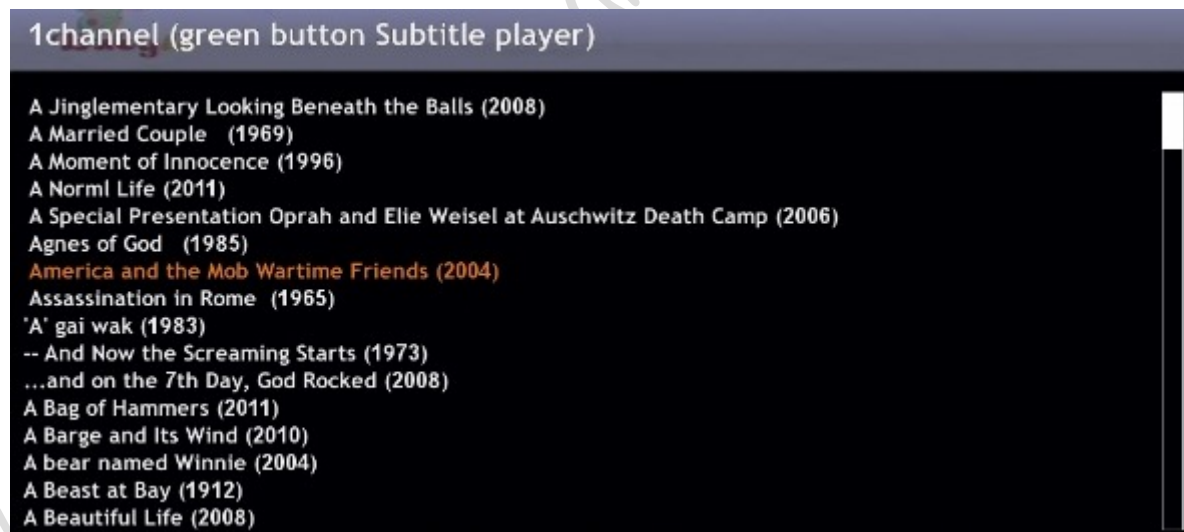
Then, where to stream it from…
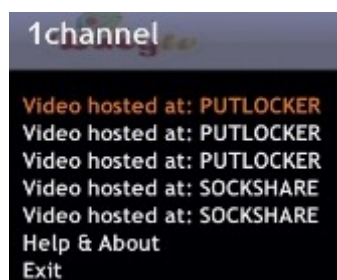
…aaaannddd… after some buffering (patience!)…

Moving on, to **CamD**s ("**Emulators**") of greatest importance, for most users…

OSCam stable 1.10, with DVB API!!!

OSCam is installed easily from the PB server, including the configuration files, as described above, with a single push of an RCU button.. (**v. 1.10** and a **1ˢᵗ slot configuration files**).

OSCam (with DVB API) is both server and client, so no other cams are needed!

There are three main configuration files. One must edit them according to one's needs!

1) **oscam.conf, user and server files** are in **etc/tuxbox/conf** folder, with **oscam.dvbapi, oscam.tiers, oscam.provid, oscam.services** (find the details for your smartcard on the net)

2) OSCam_1.10 **module** is in→ **usr/bin/cam** (→ CHMOD to 755 [right-click on the file → File permissions → 755 → OK], if you're FTP-ing it to PBNIGMA VX II!)

3) script **oscam_1.10.sh** is in **/usr/script/cam** (→ CHMOD to 755 if you're FTPing it to E2)

One can make these files with **Notepad++** → Copy and Paste the content into it → edit as appropriate for your card → Save as → (bottom drop-down menu) All files → name it → Save.

OSCam configuration file is used to sort out the main, global functions and to make a part of your N or C line.

For instance, that you **prefer your local card** over ones on the net. Or how to **control OSCam via WebIF** (get into your OSCam settings using your internet browser). If you are **using your card reader, with Original Smart Card** (OSC) in it, so your subscription takes precedence and you can **share it with your colleagues**/peers, plus **using which protocols** and **how exactly**…

oscam.conf

```
[global]
Nice = -1
ClientTimeout = 5
BindWait = 60
LogFile = stdout
CacheDelay = 120
preferlocalcards = 1
waitforcards = 1
saveinithistory = 1
lb_mode = 1
lb_save = 100

[webif]
httpport = xxxxx
httpuser = xxxxxxx
httppwd = xxxxxxxx
httpallowed = 127.0.0.1,192.168.0.0-192.168.255.255
httprefresh = 5

[dvbapi]
enabled = 1
au = 1
user = local_user
boxtype = dreambox

[newcamd]
key = 0102030405060708091011121314
port = xxxxx@0B00:000000

[cccam]
port = xxxxx
reshare  = 3
ignorereshare = 0
version  = 2.1.3
updateinterval = 240
minimizecards = 0
keepconnected = 1
stealth = 1
```

The following file is used to setup various readers/servers, including your own (i.e. both "local" and those of your peers, used/connected with over the internet), i.e. **OSCs to open various channels with**…

oscam.server

```
#my internal card reader and server, with local card

[reader]
label = your_subcription
description = whatever_you_like
protocol = internal
device = /dev/sci0
group = 1
emmcache = 1,3,2
detect = cd
caid = 0B00
ident = 0B00:000000
services = CD Sweden
cardmhz = 357
mhz = 500


#external CCcam readers = my peer's servers, group 2

[reader]
label = xxxxxxx
enable = 1
protocol = cccam
device = xxxxxxxxx.dyndns.org,xxxxxx
user = xxxxxxxx
password = xxxxxxxxxxx
lb_weight = 100
reconnecttimeout = 30
audisabled = 1
group = 2
cccversion = 2.1.3
cccmaxhops = 1
ccckeepalive = 1
emmcache = 1,3,2
fallback = 1


[reader]
etc. etc.
```

In the following file, one sets up users of your smartcard/subscription, including yourself! Here, you give permissions to use your card/your own reader/server, among other things, by placing users in different groups, depending on what you want to share/use...

oscam.user

```
#my local account

[account]
user = name_it
group = 1,2
au = 1
services = all
monlevel = 4
betatunnel = 0300.FFFF:0100,0400.FFFF:0100
keepalive = 1

#my peer's, external accounts

[account]
user = xxxxxxxx
pwd  = xxxxxxxxx
group = 1
uniq = 40
au = 0
caid = 0B00
ident  = 0B00:000000
monlevel = 4

[account]
etc. etc.
```

In the second account: this is for an **N-line**. In that case, you are only sending the original card and nothing more, like the stuff you might be getting from your "peers", if you have their permission for re-sharing their card(s).

If you are sending a **C line** with everything you are getting from your peers, then put "services = all".

The following one is used to start and stop OSCam.

oscam_1.10.sh

```sh
#!/bin/sh

OSD="Oscam_1.10"
PID=`pidof Oscam_1.10`
Action=$1

cam_clean () {
        rm -rf /tmp/*.info*  /tmp/*.tmp*
}

cam_handle () {
        if test -z "${PID}"    ; then
                        cam_up;
        else
                        cam_down;
        fi;
}

cam_down ()     {
        killall   Oscam_1.10
        sleep 2
        cam_clean
}

cam_up () {
        /usr/bin/cam/Oscam_1.10 -c /etc/tuxbox/config &
}

if test    "$Action" =   "cam_res" ;   then
        cam_down
        cam_up
elif test "$Action"      = "cam_down" ; then
        cam_down
elif test "$Action"      = "cam_up" ; then
        cam_up
else
        cam_handle
fi

exit 0
```

It should work, if you put in your subscription's correct details, plus your peers' details, provided OSCam can work with your subscription card. It works with so many!

Restart GUI, then → **blue** button → PB Centre → Cam Manager → start OSCam 1.10.

Don't forget to do the port forwarding in your modem/router, if you wanna be a server!

→ Exit button and wait for the picture, if all was done correctly. Maybe change a channel…

OSCam Info plugin

Use this plugin for OSCam, like you would CCcam Info for CCcam (see below).

Configure it in MENU → Plugins → OSCam Info → Setup.

Put the port, username and password details from webif (oscam.conf). **Green** button to save.

CCcam - an easy rider...

If one can't or doesn't wish to learn or if one has no time or good will or if one feels insecure or... I don't know... has some kind of an OSCam-allergy, hehe...

The one advantage over OSCam is – it works with all kinds of publicly available keys for the publicly available, hacked systems of encryption (unless you use a specially modded version of OSCam). I shall describe how to easily get them straight into your machine, from a server...

CCcam: Emulator, Card Reader, CS Server and Client

I will presume you followed my advice from the PB Centre section, i.e. that you have installed the CCcam config files - from the same PB-Centre Addon sub-section. In that case, you will have a fully functional CCcam 2.1.3, with a minimum of fuss/subsequent editing!

In the **/etc** folder you will see CCcam configuration files, like **CCcam.cfg**.

As most of you know, one can read all the instructions in the file itself, which is loaded with explanations/comments!

So, one puts one's F (to be a server), C and N lines (to be a client) in the CCcam.cfg file.

Restart.

After that go to **blue** button → PB Centre → Cam Manager and give the command to "Start/Restart" CCcam, using the **green** button (see image above).

Warning: if you are going to be a server, don't forget to open the correct port(s).

For much more info, on this and many other subjects related to CS, see the **11ᵗʰ part of this guide** (**Appendix**). Especially newbies, in need of more detailed info about its inner structure...

There, you will be able to read a lot more, in order to understand Emulators, CS SW etc.

Also, about configuring other equipment and which tools to use for it etc. etc.

Script to get the keys from the net, straight into CCcam

If you are going to use the emulator part of CCcam, i.e. the publicly available keys of hacked encryption systems, then you will need the files for it, plus edit the CCcam.cfg file to put in the correct path to direct CCcam to them (/var/keys, in F500 HD with PBNIGMA VX II).

One can get them from various good forums or *via* a **script** called...

TechSatKeyDownloader.sh

1) Make the **TechsatKeyDownloader.sh** file from the following text, as described above:

```
#! /bin/sh
#DESCRIPTION=This script Download Softcam by TeChSaT Team

umask 022

clear

echo " TechSat Team"

echo " Contacting server. Please wait..."
echo ""

wget http://satlab.techsat.info/Maker/CCcam/SoftCam.Key -O /tmp/SoftCam.Key
2>/dev/null
wget http://satlab.techsat.info/Maker/CCcam/constant.cw -O /tmp/constant.cw 2>/dev/null

if [ -s /tmp/SoftCam.Key -a -s /tmp/constant.cw ]; then
   echo " Softam files downloaded succesfully! Installing..."
   echo ""
   mv -f /tmp/SoftCam.Key /usr/keys/SoftCam.Key
   mv -f /tmp/constant.cw /usr/keys/constant.cw
else
   echo " Download failed! Try again."
   exit 1
fi

echo " Softcam files installed succesfully! Enjoy!"
echo "_____"
echo ""
echo "For Info Channel Key. Please Wait...."
echo ""
sleep 2
wget http://satlab.techsat.info/Maker/CCcam/TechSat.log -O /tmp/Changelog_info.txt
2>/dev/null

echo ""
cd /tmp
sed -e 's/ //g' Changelog_info.txt > output.txt
grep -v '^$' output.txt > outputnew.txt
cat /tmp/outputnew.txt
rm /tmp/Changelog_info.txt /tmp/output.txt /tmp/outputnew.txt
echo "_____"
echo ""
echo " Powered by TechSat Team - http://techsat.info/"
echo ""
```

```
exit 0
```

2) Save as "All types", with the name I gave above (**TechsatKeyDownloader.sh**).

3) Use FZC to FTP the file to PBNIGMA VX II, to /usr/script/cam → CHMOD to 755. Restart GUI.

4) When E2 is up again, go to: **blue** button → Dream-Explorer → usr → script → cam → TechSatKeyDownloader.sh → OK → Start execution → EXIT when done.

5) Check that you have the keys, by using FZC → F500HD → usr/keys.

6) The proof of the pudding is in eating! Go to HotBird @ 13°E (the satellite everyone has) and find TV Globo, which should work with those keys you just got from the net, hehe...

7) **Blue** button → CCcam Info → it should say "Using: Emu"!

8) If this doesn't work, one can still get the keys at the address in the script: http://satlab.techsat.info/Maker/CCcam/TechSat.log - put them into **SoftCam.Key** file you will find on the net and FTP it to PBNIGMA VX II, manually…

CrossEPG

Need **Electronic Programming Guide?** You will need this plugin! (Btw, it doesn't always work!)

Not all providers are sending EPG with the pretty pictures they are sending to us... So, I installed the CrossEPG as an .ipk package. Get it here: http://code.google.com/p/crossepg/downloads/list When done → Exit button → Restart GUI.

Try various versions! Keep your nerves in check - it's not 100% operational with all images!

Configure CrossEPG

According to your needs: MENU → Setup → CrossEPG

First, go to → **Configure**, to setup where to send the subtitle files you are going to download, when you will do this, if it's going to be automatic (and when) etc.
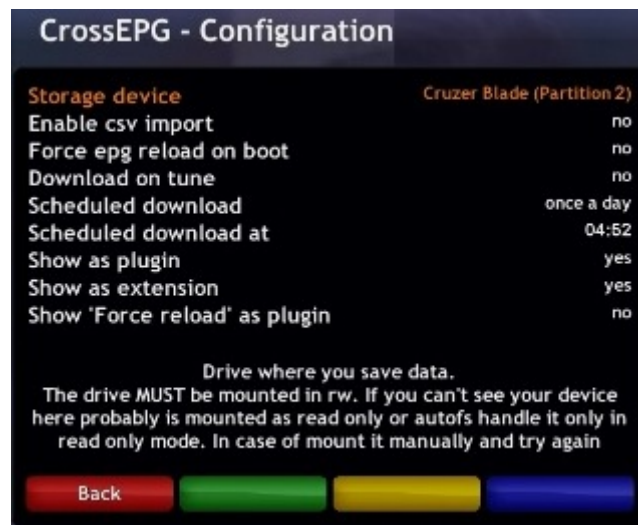
→ Exit RCU button. Now, choose XEPGDB and other types of files for various providers! Some formats are quicker to download and load to your USB memory than others... Test it…

We should now check if we are sending the EPG files to **/media/cf** and **/media/cf/crossepg folders** by going to PB Center → PB System Setup → Set EPG Path. Make sure, as I wrote already, that all those places where you direct those downloads are "in sync"…

Get out of that menu and go to Restart GUI!

You are now ready to...

...**download the EPG** and all should function well: blue button → CrossEPG Downloader, → OK.

A little bit of patience and when it's done → Restart GUI! (If you're lucky it _might_ work!)
After that, check the EPG by pressing the Info →yellow/blue RCU buttons. If it works - great! But I have to say I am having problems with it. At least with this image, I do…

If it does work, then one goes to blue button → **Cool TV Guide** and one can see a lot more...

If one installs **MultiQuick Button plugin**, one can assign a (coloured) button of one's choice to Cool TV Guide function, for instance. Once in Cool TV Guide, if you want to see more channels in the list, press the yellow RCU button.

At this point, one must investigate further the EPG possibilities in connection with what one has in PBNIGMA VX II now, and then arrange it according to one's needs, of course.

If everything slows down considerably - try restarting it properly, not just the GUI...

DDamir's Subtitle Player tutorial, thanx to Zupy

No point in re-writing a good guide for the plugin! It's here:
http://www.krkadoni.com/log/forum/index.php?topic=144.0

Download it here: http://www.krkadoni.com/log/forum/index.php?topic=189.0

One of four best ever written plugins for E2, IMO!

However, it could be better! To my mind, it lacks playing subtitles from any folder easily, i.e. to start searching from the folder where the film itself is, if one is streaming from an HDD, NAS or PC. Also, effective syncing with a film - at any moment. It should instantly sync the time played with the time indicated in the subs file. Some OSs can, so why not this plugin?

1Channel and DDsubtitle player working together

If you have installed **DDsubtitler 3.09**, the first thing to do is to **update it to v. 3.18**, from within the plugin itself. Press "**0**" on RCU, when you are in the main menu. **Repeat it**, after **reboot**, to updated it yet again, to **v. 3.23** (at the moment)!

Configure DDsubtitler according to your HW setup. My **subtitle downloads** are going to **/media/cf/subtitles**. You will see how to do it, in the main DDsub menu – coloured buttons...

Start 1channel plugin, **find a movie** you wanna watch and at the top of the window you will see a message to **press the green button**. **DDsubtitler starts** and **at the bottom of the window** one can see **the title of the film** you have just found in **1Channel** and want to see.

Press the green button (**download**) and various **subs for the film are offered**. **Choose** the one you want and **it will be downloaded** to your preferred location. **Exit DDSubtitler**. One returns to the **previous menu in 1Channel plugin** now, where one chose the name of the film. **Start the film** (by pressing **OK** and **choosing the service** from which to stream). Now, you need to go back to DDsubtitler: press **MENU** on RCU → **Plugins** → **DDSubtitler** → blue **button** to start the already downloaded, ready to watch subtitle file. Now you need to **sync the video & audio**, by pressing the four (arrow-like) buttons around the OK button. Enjoy!

A big **thanx** to **Damir**, **Subixonfire** & **Grle** for the tips!!! Very cool - their help saves valuable time – kinda like this guide to you, hehe... ☺

10) Streaming

As you read above, I have an external, USB HDD attached to my F500HD.

Also, I have a couple of laptops and **Synology DS210j NAS** attached to my router, just as my F500 HD is attached to the router. They should all, therefore be able to "talk". So, let's talk streaming "multimedia" and Multi Media Centres.

It is good, it seems to me, to have already sorted out the USB HDD before this...

Prepare the Home Network

I made them all a part of my WORKGROUP, of course. One ought to configure each device, so they belong to the same WORKGROUP. You can name your WORKGROUP any way you want to name it... Allow each other's access into each machine's firewall, if any!

Then, one must prepare to stream from PC/laptop to F500HD with PBNIGMA VX II, by making various folders "visible" to PBNIGMA. I.e. one has to make those folders "shared folders" and a few more things... Only then can we go to sorting it out in F500 HD.

In accordance with the above requirements, I did the following, in order to "mount" the **movie**, **music** and **photo** folders in my NAS and laptop's to my Ferrari, so Ferrari can "see" those files and my NAS can stream them, *via* my home network ([W]LAN) to Ferrari...

From NAS to MMC

1) On Synology DS210j [my cool Linux-based, really well sorted NAS], I created shared folders [video, music, photo].

2) Then, I activated the NFS sharing protocol in DS210j settings [Linux streaming protocol, as opposed to Windows, CIFS].

3) In the NAS I also created a user I called Ferrari [including the password]. Otherwise, all else is done from the main admin account, with its password. One needs to give rights to the Ferrari user [Write and/or just Read, according to what your needs are].

4) Each Shared Folder must be edited for → **NFS Privileges**. Here, I gave them to my F500HD, in the form of its IP address [192.168.x.x].

Even though I have an account with username/password to log in – those aren't necessary!

The Shared Folders, once again, are **video, music**, and **photo**.

Now, we shall prepare a PC/laptop, with various Operating Systems, for streaming from them!

From PC/laptop to MMC

I'll only cover three various flavours of Windows here...

How to stream from PC with XP to MMC

Start your Windows Explorer → go to the main folders or even whole partitions you want shared → right click on them → Sharing and Security, then give them the rights → Allow to be shared. Also, → Customise → Apply the template to all subfolders → Apply → OK.

Then, just in case, I went a bit "lower" and repeated the whole thing to the Music, Video and Photo folders, one by one, and – lo & behold - NTFS or not, firewall or not, who cares - all the movies and other media files are playable, in F500 HD, *via* Media or DVD Player!

Streaming from PC with Vista to MMC

On your PC/laptop: go to Start →Control Panel → Programs and Features →Turn Windows Features on or off → here I added/installed anything even remotely connected with whatever I need to use for multimedia streaming [Telnet Client, TFTP Client, Services for NFS...], since lay-people like me cannot know exactly what's what in there, hehe...

Start → Control Panel → Network and Sharing Centre →allow:

Network Discovery
File Sharing
Media Sharing
So, those to ON!
The rest to OFF.

At the bottom of that page click on "Show me all the files and folders I am sharing".

Now, go to a partition or a folder or a file you want to "share" → right click → Properties → Sharing → Advanced Sharing → Share This Folder → Permissions → Everyone [only "Read" is enough, from all the options there] → Apply → OK.

Security → Everyone.

Customise → All items → choose/tick "Also apply this template to all subfolders" → Apply → OK or Close, whatever's there...

Streaming from PC with Windows7 to MMC

I first went to Windows7 components and activated everything network related there:

Start → Control Panel → Programs and Features → Turn Windows Features On or Off →tick the Media Features, Network stuff, Telnet Client, TFTP etc. → OK.

Next, go to Start → Control Panel\All Control Panel Items\Network and Sharing Centre → click on Choose 'Homegroup' and sharing options → choose the folders to share. Tick the option to "stream your pictures, music and videos on my home network".

Click on Change Advanced Sharing Options. You are in Control Panel\Network and Internet\Network and Sharing Centre\Advanced sharing settings:

turn on network discovery
turn on file and printer sharing
stop the "Public Folder Sharing".

Go to → Control Panel\Network and Internet\Network and Sharing Centre\Media streaming options → Media Streaming Options → Name your media library [your nick, for instance].

Show devices in the local network → Allow all

Media programs etc. etc. → Allowed.

Go back [BACK button]:

leave the 128b encryption to on
turn off password protected sharing
allow Windows to manage homegroup connections.

Then, **start your Windows Explorer** and
find all the folders you want to share;
right click on each folder and go to **Properties**;
click on **Share tab** → click on the little arrow downwards to get the drop down menu and choose **Everyone**, then click on **Add**.

Give "**Everyone**" the permission to **READ ONLY** and click on **Share**.

You have more controls/options under **Advanced Sharing** button. Go to it and check the permissions etc. When you're done, in the main **Properties** little window, finish by clicking on **Apply** and **Close**.

Reboot your PC or at least reboot your Ferrari (sometimes both is needed) and try finding your PC and the folders to stream from. Normally, one needn't reboot F500HD, mind!

Mounting shared folders in MMC using NB/MM plugins

There are two ways of mounting shared folders from "networked devices" ([W]LAN) to your MMC/F500 HD:

1) Using NetworkBrowser/MountManager plugins or

2) Using fstab editing.

For the former: press the MENU on RCU to get to the → **Main Menu** → **Setup** → **System** → **Network** → **NetworkBrowser**. Don't worry, I will repeat some stuff from above but it'll make it easier on you, so you don't have to go back to find the relevant parts of the "guide"… ☺

Make sure all your multimedia devices are turned on.
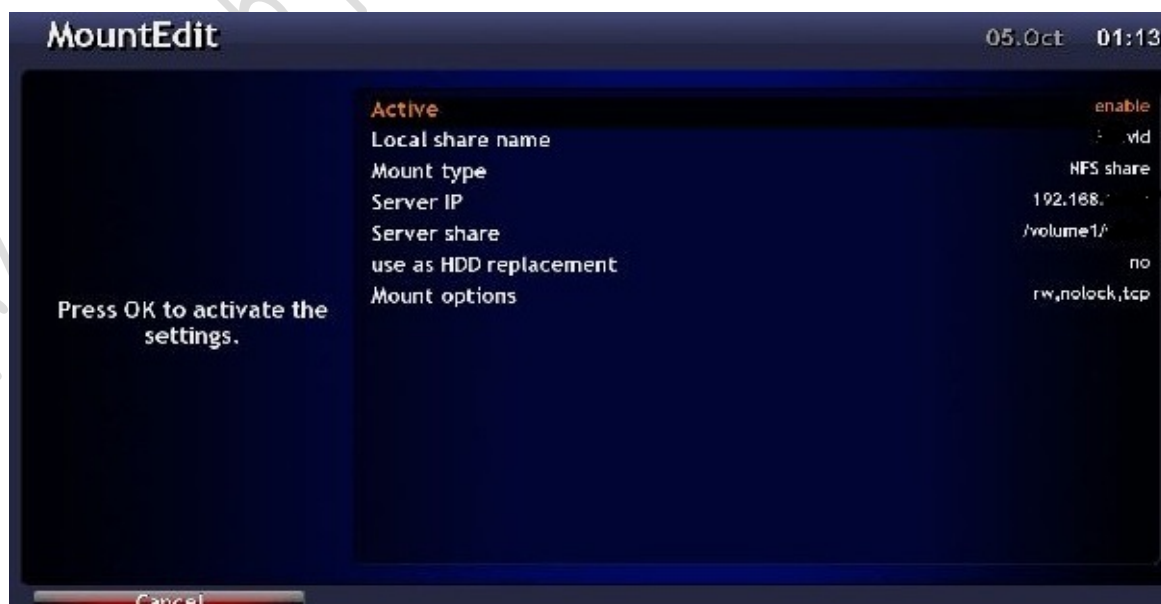
The plugin scans your Home Network and gives you what it finds in the list.

Choose your (Linux) NAS and you are supposed to see all of its shared folders, which you now need to "activate" and "mount."

Choose one and it will ask you if you want to enter a username and password for this host.

Choose "no"! Then, you will see the list of all the folders it found. Pick one.

Active → Enable.

Local share name → give it a name that will describe which machine it is and which shared folder it is (for instance, **NASvid, NASmus, NASphoto** or **PCvid, PCmus** or **PCphoto**).

Mount type → NFS, if your machine is Linux based (like my Synology NAS 210j) or **CIFS** share, if your PC/laptop/NAS has Windows as its operating system.

Server IP → 192.168.x.x (local network IP address of your NAS or PC).

Server share → it has two slots, divided by the forward slash (/) sign (my NAS/NFS shares require both slots but my CIFS/laptop shares require only one slot = the name of the folder itself): **NFS/NAS** example: **/volume1/video** and **CIFS/PC** example: **/VIDEO.**

Use as HDD replacement → no.

Unless you **want to record to your NAS or PC over the network,** in which case choose "yes" → where your box will be recording by default (in Setup → Record path →/hdd/**movie** will be that folder).

Mount options → leave it as it is (rw,nolock,tcp)

Press OK on RCU to save the "mount".

Note: username and password in User management are not needed, if you did what I did in the beginning of this part of the guide!

You must repeat this procedure for each shared folder on any machine with shared folders you want to stream from.

You can check if the folders are both mounted and active by going out of NetworkBrowser and choosing **MountManager →Mountpoints management, where you can edit or delete them**.

Where to find those folders in E2?

Well, if all goes to plan, all of those "Mount Points" can then be seen in 2 places:

1) **Media centre →** choose **My Videos** (or Music or Pictures) → here, one is given various options, depending on what one has attached to F500HD:

-**Internal Flash**,
-**HDD** or
-**USB stick** and then follow
-**all of those shared folders mounted by Mount Manager plugin**, from either your NAS or PC/laptop,

but also

2) under: **Internal Flash** → **media** → **net** → they are all there as well...

Normally, we can choose **the recording path**, like the picon or EPG path.

However, **if we do this *via* the plugins, the default path is changed and directed to the NAS partition of your choosing by choosing the partition as "HDD replacement"!!!**

Therefore, the advantage of this approach, is that the default /hdd/movie folder (to record to) will now be on the NAS, if you choose the option to use at least one of the shared folders on the NAS as an "HDD replacement"! HD channels might not record correctly over the net...

Mounting shared folders in MMC by editing fstab

I learnt, thanx to Manolito's help, how to mount NFS shares from my NAS by editing the **fstab file**, which is in /etc folder of E2. That is quite an elegant procedure.

For my NAS/NFS shared folders it looks like this: create folders (I make three: **filmovi**, **muzika** and **fotke** folders) in /media/net/, where you will mount your NAS shared folders.

This is the syntax for NFS, if anyone needs to mount a Linux-based NAS:

```
192.168.x.x:/volume1/video /media/net/filmovi nfs nolock,rsize=32768,wsize=32768,intr
192.168.x.x:/volume1/music /media/net/muzika nfs nolock,rsize=32768,wsize=32768,intr
192.168.x.x:/volume1/photo /media/net/fotke nfs nolock,rsize=32768,wsize=32768,intr
```

-192.168.x.x = NAS IP address
-volume1/video = the path to the shared folder with movies I stored on my NAS
-media/net/filmovi - folder to mount it to, in your F500HD with E2
-nfs = type of protocol used by my Linux-based NAS
-the rest is **standard**, re. the data transfer limit.

This reduces the need for plugins and thereby simplifies E2, making it lighter, faster and more stable. If you mount a USB HDD beforehand, then this is cool to do for NAS.

From MMC to PC/laptop

Want to stream from MMC to laptop/PC? How?

Using **Webinterface plugin** (see **Plugins** to configure it)!

Web Browser → write MMC's IP address:80 → http://192.168.x.x:80 → Enter

This is what you'll see:

Click on WebTV and a new window should appear.

The window is somewhat limited in Firefox, as the lower part is "chopped off" a bit, sometimes. In that case, the controls are barely visible – but usable! One must choose a group and then channel to stream (to PC from F500HD).

11) Appendix

"Basic info": what is Card Sharing?

Card Sharing is:

connecting your receiver with CS capable SW in it [E2 + CS SW, like OSCam or, CCcam]

with your friends' receivers or PCs ["servers"].

Your friends ["peers"] will have Original Smart Cards [OSCs] or Emulators you do NOT have. You connect with them via the internet in order to watch the programs those OSCs/EMU's can open.

With CS you have those cards, too – if "only" virtually. But you can still watch the programs those OSCs/EMU's can open, provided your friends are constantly "online" and you can connect to their receivers or PCs and the connection is fairly fast and stable.

Create a free DynDNS account

Why? Most IP addresses are dynamic, i.e. they change periodically. This is the way to connect, regardless of the fact that your IP addresses may change.

Go to https://www.dyndns.com/account/entrance/ and then...

-choose a username
-then a password
-confirm it
-provide them with a valid email [you must!]
-confirm it
-security image - carefully put it in the box provided
-click on "I agree with Terms & conditions"
-click on "Create account".
-You get an email.
-Click on the link provided to activate the account.
-Login at the dyndns.org website.
-Go to: My Service → Add hostname → create it: xyz.dyndns.org or something else you choose there [they have a few].
-Click on "Use auto detected IP address xx.xxx.xxx.xx".
-"Add To Cart" → it will say something like "You must checkout to activate".
-Click on "Next" and then on
-"Activate Service".
-You should see: "Host Services successfully activated". Now you are ready for the CS part...

GBox [and the SSSP derivatives, like MGcamd and Mbox, for instance], need this to function, for both Client and Server services. If you only use CCcam client service, it is not needed.

Log into your DynDNS account [on their website], once a week, so they don't delete your account. Sometimes they do it, without any notice! Then, you must repeat the procedure.

Let me also mention that there are other similar, gratis services! Just search on the net!

Setup your router/modem with DynDNS details!

After that put the DynDNS details into your Router to enable your DynDNS Service updater in it, so DynDNS Service is updated every time you change your IP address and your friends can find you through the DynDNS address. Namely, in your router's DDNS options [if you have more than one]:

choose DynDNS, then →
put your newly created **DynDNS account username**, then
DynDNS account password, then
Hostname [like **myname.dyndns.org** - this is just an example, create your own name!!]

How does one **get into one's router?** Using your browser [like Firefox], of course. You will see the router's interface after writing http://192.168.x.x or so, into the address field of your browser, then **your router's username and password**, which details you will find in the router's documentation.

That address, i.e. the DynDNS hostname you just created is always going to be the same, even though your IP address might change every time you logon/get online/boot your PC.

Now SAVE all that, APPLY, or ENABLE, whatever is in your Router's interface, so you do not lose all those settings.

Now, to port forwarding!

After that, you need to **forward some ports in your Router**. That allows your CS SW to go to the net and connect with other PCs, in this case a Server with your friends' cards, the stuff you want to watch...

Btw, usually many different people end up in the network, so all kinds of packages can be seen!!! In other words, opening up of various ports enables you to get into the dark, pirate world – but of vivid colours, nevertheless and all that through those little backdoors, called ports heheeeeee...

This will devilishly keep you busy for a while, you'll see...

Yet more details regarding the router setup

All manner of documents for various routers and modems (so no one will fail in sorting it all out for themselves), can be seen on the net:

http://www.portforward.com/ - some details to learn about, i.e.

http://www.portforward.com/routers.htm - routers

Whatever you'll see here might not correspond to your own machine but the principles explained here will apply, for minimally intelligent people, at least - given the absence of heavy-duty spiritual laziness!

For more details, have a look at your router's documentation.

So, let's explain the principle of **Port Forwarding (opening of ports for traffic, directing it to a specific device in your home network)**.

In my modem, it's under **Applications and Gaming → Port Range Forwarding**. Please, see the image attached for a better idea...

Now, **name an "application"** [either **by your peer's nickname**, because usually you will open more than just one or two ports for CS, then each could be named after your friend or **by protocol**, like Newcamd] – see the image below.

D-Link

| DIR-615 | SETUP | ADVANCED | TOOLS | STATUS | SUPPORT |

PORT FORWARDING

This option is used to open multiple ports or a range of ports in your router and redirect data through those ports to a single PC on your network. This feature allows you to enter ports in various formats including, Port Ranges (100-150), Individual Ports (80, 68, 888), or Mixed (1020-5000, 689).

[Save Settings] [Don't Save Settings]

24 -- PORT FORWARDING RULES

Ports to Open

	Name		TCP	Schedule
☑	CCcam	<< Application Name	■	Always
	IP Address		UDP	Inbound Filter
	192.168.■	<< Computer Name	■	Allow All
	Name		TCP	Schedule
☑	Newcamd	<< Application Name	■	Always
	IP Address		UDP	Inbound Filter
	192.168.■	<< Computer Name	■	Allow All

Helpful Hints...

Check the **Application Name** drop down menu for a list of predefined applications. If you select one of the predefined applications, click the arrow button next to the drop down menu to fill out the corresponding field.

You can select a computer from the list of DHCP clients in the **Computer Name** drop down menu, or you can manually enter the IP address of the LAN computer to which you would like to open the specified port.

Select a schedule for when the rule will be enabled. If you do not see the schedule you need in the list of schedules, go to the Tools → Schedules

Virtual Server / Port Forwarding / Application Rules / QoS Engine / Network Filter / Access Control / Website Filter / Inbound Filter / Firewall Settings / Advanced Wireless / Wi-Fi Protected Setup / Advanced Network

Put the Port Range as follows:

-**your port** [the one you have to give to your friend to put into his cwsahre.cfg or peer.cfg, together with your DynDNS and Pass] and

-**his port** - the one he gave you, where you will be let into his machine, just do the same as above but name it after your friend, so you know which one is which.

From experience, it is easier to forward the same port your friend opened for you, as there is no chance you can swap them by mistake... In that case, the same port should be in **Start** and **End** little box, then

-**UDP** or **Both Protocols**, depending on the CS SW protocol, and

-**add your IP address**, plus **tick it at the end, so it is active**. {At least, that is how it is in mine.}

Check your PC's IP address by clicking on the **Network Icon** in the **Systray → depending on the OS you have, this is OS-specific…** Occasionally, it may change, if you get another device connected to the network, so check it, if CS SW is not working. It looks normally something like 192.168.1.101 or so.

One can check it also by going to Start → My Network Places → View Network Connections →click on the active icon → the details are in the lower left hand corner. That is, check your F500 HD's IP address as described above...

Now, go to the bottom or top of the page (depending on the modem/router) and **SAVE/APPLY SETTINGS**! If you did it the right way, it should all be saved and you will see it the way you want it to be, right in front of you.

More on CS below, when I'll be writing about specific CS SW in detail, with all the juicy stuff included, like which files exactly and how to edit it etc.

Open Source CamD: OSCam!!!

Forum is here: http://www.oscam.to/wbb3/index.php?page=Index & more help here: http://www.streamboard.tv/oscam/

Info here: http://www.streamboard.tv/svn/oscam/trunk/Distribution/doc/txt/

Examples: http://www.streamboard.tv/svn/oscam/trunk/Distribution/doc/example/

Latest OSCam for E2 is here: http://download.oscam.cc/index.php

Here's an example for setting it all up: http://streamboard.gmc.to/wiki/index.php/OSCam/en/examples/Sky_HD_and_MTV-Unlimited

Many Original SmartCards details here: http://www.streamboard.tv/oscam/wiki/CardsList

A *must info* is here: http://www.streamboard.tv/wiki/OSCam/en - in 4 major languages.

Thanx, for helping me out while trying to get my head round **OSCam**, goes primarily to **B@mbi** but also **hperez, gianni, subnixonfire, Siri, belami** etc. etc.

I have tested it with my Conax CD card CAS5, as I have already written above. OSCam works **both as a (Newcamd) card reader/server, as well as a (CCcam) client**, so there's no need for any other CS SW.

But if you need an emulator which will also work with keys, use CCcam or MGcamd! Some people might want BISS or Viaccess encrypted but hacked channels opened by an emulator, rather than CS SW, as it is faster and more stable. I hear modded OSCam is OK for it, too...

Which version to use?

After plenty of testing, with many different configurations, on a few OSs (original FWs and E2s), a few original FWs (AZboxHD and Alien2), as well as few versions of E2 (based on DMM or OpenPLi) - I will try to explain the very basics of OSCam structure. I.e. how it functions, its basis, in addition to what I have already written.

The **version of OSCam** I am using, fairly successfully (with a few stops between encrypted TV programmes, occasionally), is **OSCAM 1.10rc-svn build #5775, with dvbapi.**

Install it

A little recap: I have described above how to install it from PB support server.

But I have also mentioned how to do it manually. One has to create various files on one's PC, using a freeware application **Notepad++**. You will FTP those files by FZC to various folders, as indicated above. The OSCam module itself, as well as the OSCam script must be "given rights", i.e. CHMOD to 755. Reboot.

Essential files

So, you have the **three main configuration files** when you install them from PB Centre. They will appear after you install the configuration package for OSCam (slot 1 or 2). Do not deviate (a lot) from the ones that you will get like that, for starters, since one wrong parameter might mean a lot of headache and no pretty pictures on telly... Later, try different ones but always make a backup BEFORE you attempt any changes! Just in case, for Devil never sleeps!

Those are: **oscam.conf, oscam.server, oscam.user.** See what they look like above, please.

How OSCam works?

I shall try to explain the best I can, in simple terms, **using the least possible jargon**, "what makes OSCam go". Starting from the name of a file...

In **oscam.conf** file we set up the general configuration/settings for your CS SW.

In **global section** general settings are sorted out: whether you want logging to go on inside E2 or not, if OSCam should first look to the internet or your local card(s) for info, whether to spread the load on a number of your peers' cards, so as not to overwhelm a single card etc.

In **webif section** (look above – enlarge the image, if needed) one sorts out how to oversee OSCam at work. Namely, if one can connect to OSCam via a Web Browser to see all the info, as it's happening, enter the files, even edit them etc. You setup the port, username/password for it, from where can one connect to OSCam, speed at which the info should be renewed etc. In WebBrowser one writes: http://192.168.x.x = your box's IP address→ hit the Enter button on your keyboard. In your Web Browser, if needed, put in the username and password and see it all happening...

The **dvbapi section** is used to make OSCam an independent CS SW, not needing any other CS SW, if one enables it here. One also (dis)allows AU (auto-update of your OSC, i. e. renewal of your subscription through your [internal] reader), sets up a user (to be used in oscam.user file) and the boxtype.

If one disables it, then one needs another CS SW to do the decoding, like, for instance, CCcam. In that case, one can also use all the publicly available keys to open various hacked channels/providers, using the hacked systems of encryption.

In **newcamd section** one sets up the key which encrypts the traffic between you and the peer, port and CAID of your subscription card/provider.

In **cccam section** one does generally the same thing.

In **oscam.server** file we set up our **local card reader/server** (card reader of our "local" card [or cards]) and external **servers ("readers") of our friends** ("peers"). For us, our card is a "real"/"local" card, whereas their cards are "virtual".

So, **the first [reader]** on the list **is your [internal/embedded or USB] card reader**, the "server" primarily for yourself, to which the OSCam **client** part hooks onto, internally, to open the channels. But it is also a server to your peers/colleagues.

All the following ones are **external [readers]**. They are also servers but they are **the servers of your peers, to which you hook onto, as a client**. I.e. their readers read their cards, not just for themselves, but for you, too.

Hence, **all the readers/servers are simply "readers", whether local [yours] or remote [virtual, via internet]**.

The **details marked in bold (xx)**, in those files I posted earlier, you get from your colleagues/peers, like username, password, port and dyndns domain name. Those are necessary to hook onto their servers. They must open the port for you at their end.

You as a client in CCcam protocol do not need to open various **ports**, only servers [your colleagues/"peers" giving you access to their cards] need to do that.

For now, let's just say that your embedded cardreader/internal reader/server should be in **Group 1**, whereas your CCcam external readers should be in **Group 2**. If you have many C lines you can sub-divide them further, to make it all better optimised/efficient. Or you can add **Newcamd** ones in **Group 3**, **GBox** ones in **Group 4** etc. etc.

In the file called oscam.user you are setting/hooking up various "users/clients" to your "server/reader".

Each "**user**" in the file has an "**account**" with **your server/reader**. I.e. a user will use your server/services, whether **internally** [the first one is you, hooking/connecting with your own card reader/server, inside the receiver itself] or **externally** [your peers will hook onto your card *via* internet].

Speaking from your peers' standpoint (**externally**), **you allow your peers access to your server** right here, by setting up their **username** and **password**. That's the first part.

The other part, to allow them access to your server, with which you create C (for your CCcam clients) or N (for your Newcamd clients) lines for your peers/colleagues, is from **oscam.conf** file, which we have already explained above.

Divide and control

You can divide the readers and accounts into groups and connect them as you wish.

For instance, **your own internal server [the first "reader"] is in group 1**.

All the other "readers" of a certain protocol are in group 2. The next protocol goes to group 3 and the next one to Group 4 etc.

The very first "account", i.e. "user" has to be in all the groups [for instance, 1,2,3,4], in order to hook both onto your own [internal] server/reader, as well as your colleague's [external] readers/servers.

So, this **first user** [which is yourself] **must hook onto both your internal reader/server [group 1], as well as external readers [groups 2, 3, 4 etc.].**

The other users/accounts are, in my case, Newcamd protocol clients of mine [me being a server, passing my smartcard to them *via* **N-line**], i.e. they are getting access solely to my smartcard [internal] reader/server, by being placed in Group 1. That way they will not draw from anything except my smartcard/reader.

Apparently, Newcamd server is meant for this purpose, so this is how it is supposed to be used. The **N-lines** you [partially] create from this file [oscam.user] and [partially] from Newcamd part of oscam.conf file, are to be given to your colleagues, people you trust. With those lines you pass only your card and nothing else and this is how it is done. These users are connected to my internal reader/server via Group 1 and thereby not connected to the CCcam protocol, which busy traffic is placed in Group 2.

This is enough for you to be both a [Newcamd protocol] server, as well as [mainly CCcam] client. You give your card[s] in return for other people's cards. No need to pay for "CS services", run by "our" little CS "entrepreneurs", spoiling the fun for us!!!

How to create N and C lines

Thanx to **B@mbi!** And I quote (my translation):

N-lines:

As explained above, one partially forms an N-line, in *oscam.conf* file:

```
[newcamd]
port = AAAAA@xxxx:000000
key = 0102030405060708091011121314
```

Ergo, N-lines are usually (in Cccam, for instance) made like so:

N: your.dyndns.org AAAAA username1 password1 0102030405060708091011121314

You must add a user with those details to your oscam.user configuration file, using the specified username1 and password 1.

AAAAA is the port for your NewCamd server in OSCam and it must be opened/directed/forwarded in your router, towards your receiver's IP address.

xxxx = **CAID** for your **OSC**

key (0102030405060708091011121314) is used to encrypt the connection between two peers

C-lines:

They usually (in CCcam) look like this:

C: your.dyndns.org BBBBB username2 password2 no

In OSCam, one makes a C-line partially by using the parameters from *oscam.conf* file's cccam section (as a connection with remote card-readers):

```
[cccam]
port = BBBBB
```

In your *oscam.user* file add a user with username2 & password2 (see the earlier example).

So, **BBBBB** is a port for your CCcam server in OSCam and it has to be opened/directed/forwarded in your modem/router towards your receivers IP-address.

Protect your card from misuse by sociopaths

One thing, though: read more about anti-cascading, to prevent misuse of your OSC by others!

http://www.streamboard.tv/wiki/OSCam/en/Config/oscam.conf#Anticasc

http://www.streamboard.tv/svn/oscam/trunk/Distribution/doc/txt/oscam.ac.txt

Here is an explanation, thanx to the sharer whose nick escapes me, sorry... My edit, only...

"Stop your cards being stolen by OSCam users who are faking it…"

This is a quick "how to" for those of you who want to protect your local card after the recent rise of card fakers/thieves.

With OSCam currently, users can take a C-line that you have given them and put it into OSCam, thus bypassing any reshare limits you set. They can then go one step further and fake your "local" with the 256 trick in CCcam versions prior to 2.1.4. It's nice and easy to use and just some settings to add.

Anticascading

So if you have a peer who is doing re-sharing/"faking" he has your card as his own, do this: in your oscam config directory create a file **oscam.ac** and put in it:

```
#
# anti-cascading table
#
# format: <CAID>:<provider ID>=<seconds>
```

Here is an example for Sly Italia. Follow the format above:

```
093B:000000 = 9
*=15
```

Next, in your **oscam.conf** add following:

```
[anticasc]
enabled = 1
numusers = 1
sampletime = 2
samples = 5
penalty = 0
aclogfile = /var/log/oscam_ac.log
denysamples = 9
fakedelay = 1000
```

In **oscam.user** add the following for each guilty user:

```
penalty = 1
```

This will work as follows: OSCam will sample every user for ecm requests for 15 minutes.

If a bad, bad guy exceeds the limit OSCam will send a fake CW for the next 9 samples.

If in user file you do...
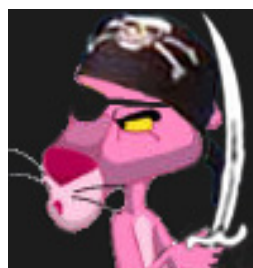
```
penalty = 0
```

...the user will not be punished but it will be logged in **aclog file**.

Do not go too tight with the settings as people change channels and create additional ECM requests. Above settings works a treat.

12) In conclusion

This is a great piece of SW, written by great guys, starting from the best values Humanity has to offer!!! Sit down, learn a bit and then...

<div align="center">

...enjoy!

</div>

goran/gorski

(…it says "No peace, no pussy! ☺)