Moving To Enigma2/OpenVix For Toppy Users

Or
What I Wish I Had Known When I Started!
(Version 2)

1   INTRODUCTION

The move from Toppy to an Enigma2 based PVR seems to be a logical step, with the latter having many desirable features including "Plug-ins" which perform the same role as Toppy TAPs. This note is intended to help Toppy users decide whether to migrate, which model etc to choose, and highlight some of the features which will seem strange to Toppy users.

Some of the issues raised are a matter of personal opinion, and/or luck as to problems encountered when migrating or in subsequent updates and personalisation. They have been prepared using OpenVix 4.2.021 on an XTrend 10000 with 3 tuners using Freeview rather - I have no experience of use with satellite signals.

2   WHAT ARE ENIGMA2 & OPENVIX?

An appreciation of the hardware & software associated with OpenVix is important to understanding the opportunities and problems you may encounter. Enigma2 is a pan-European PVR system running on top of Linux, and OpenVix is one of several User Interfaces for Enigma2, all running on a range of hardware from different manufacturers with different specs and peripherals (akin to the variations between PCs).

I find it convenient to think of the software being in 4 layers, working upwards as follows:

- L4 - The Linux kernel, and hardware drivers provided by the manufacturers

- L3 - Enigma2 software which provides all the basic display, recording etc fns, but no user interface

- L2 - OpenVix (or a competing product) itself which provides the user interface

- L1 - Plug-ins and skins to provide enhanced user features

Thus levels 3 & 4 together are loosely equivalent to the Topfield's firmware without the native user interface, level 2 to MyStuff + Tf5800 Display Tap+ EPG2mei, and level 1 to all the other TAPs. However this comparison underplays the complexity of OpenVix etc as they provide much more functionality and a vastly greater choice of options.

3   WHY MOVE?

3.1   For

The main arguments for moving to OpenVix or one of the competing softwares can be summarised as follows:

- Multiple hardware manufacturers, each producing several models with different numbers of tuners, front panel displays etc, but all running the same software apart from hardware drivers.
- Up to 8 simultaneous recordings
- Support for HD services.
- Support for Freeview and satellite services, or even a mixture.
- Streaming live or recorded programmes to PCs or tablets over a LAN (wired or WiFi) at full or reduced resolution.
- Support for USB tuners and WiFi adaptors.
- A very flexible user interface.
- 3rd party "Plug-ins" (equivalent to Toppy TAPs).

- Open-source software (with exception of hardware drivers?).
- Direct downloads of software updates and plug-ins from the internet.
- Limited experimentation indicates that poor signals do not have catastrophic effects.
- Can play recordings held elsewhere on your LAN
- Appears to be able to use tuners in another PVR on your LAN.

3.2   Against

The above advantages are partially offset by:

- A general lack of emphasis on providing good user and software documentation, made worse by the vast number of options available.
- An OpenVix forum which sometimes lacks the friendliness and newbie-tolerance we have come to expect on the Toppy forum. The forum is made complex and sometimes difficult to follow by virtue of the flexibility of the software, the many different hardware models/ peripherals supported, differences between satellites & Freeview, and frequent updates.[1]
- Poor, but slowly improving, support for some Freeview- (or UK-)specific aspects arising from the satellite & European background. In particular there is no "Interactive" services support, not even to the level of the images shown on radio services or re-tune warnings.
- A need for technical understanding of Linux etc to make best use of the features available[2].
- Changes being introduced (particularly to the Enigma software & Linux kernel) which have unexpected and adverse effects

3.3   Detailed Feature Comparison

Appendix 1 indicates my impression of the availability (at the time of writing) of various detailed Toppy/MyStuff features that I suspect most Toppy users would like to see in a replacement product. However due to the absence of documentation it is very difficult to establish just what is available and this may have significant errors.

4   **TERMINOLOGY**

Appendix 1 explains some of the terminology that may confuse Toppy owners. I suggest you make yourself familiar with that before proceeding.

In the discussions below I have used the term PC to encompass both Windows and Linux machines, and in many cases I suspect Android as well, but I have no real knowledge of Android to be sure.

5   **WHICH MODEL?**

5.1   General

There is a wide range of models running essentially the same software, but differing in aspects such as front panel display capabilities, maximum number of tuners, processing power etc, with new models appearing monthly. The notes below indicate some of the factors you should consider in your choice, but I recommend seeking advice from the OpenVix forum before committing yourself. There is a comparison of current & recent models here which may be of help, but like all such information on the web it should be treated with caution!

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[1] In particular when a problem is first raised it is may well be far from obvious to the newbie whether it is specific to one model, be the result of a peripheral such as a USB tuner, is associated with the skin in use, is unique to satellite or Freeview, is an OpenVix problem and/or an Enigma2 problem While it is easy to make this type of apparent criticism, it is very difficult to see how it could be organised differently to significantly improve the situation without employing a near full-time administrator shuffling threads between sections as the scope of issues becomes clear.

[2] This forum thread illustrates the point.

5.2   Tuners Types

Tuners may be:

- Built-in, plug-in, or USB sticks. Built-in may be cheaper, but will not enable you to change at a later date. USB sticks tend to be mechanically problematic, and in my experience do not have outputs to allow daisy-chaining of tuners so need separate inputs.

- Satellite (S2), T (Freeview SD), T2 (Freeview HD), and or C (cable), though most are either S2 or T&T2&C

Some come as pairs of tuners of the same type in one box.

5.3   Tuner Numbers

The software supports any mixture of up to 4 S2 and T/T2/C tuners, but not all hardware supports this many built-in or plug-in tuners. The number required is very much dependent on your viewing habits and needs, and will depend on factors such as:

- Will you be using the PVR as a Set-top box for viewing as well as recording?
- How many muxes/Transponders can you receive? - No point exceeding this number of tuners.
- How are your favourite channels distributed across the muxes?
- How important is it that recordings are not missed?

See ?? below for more details.

5.4   What Type & Size Of Hard Disc

The software supports recording to internal hard discs, external SATA hard discs, USB drives, and network drives, so there is a wide range of possibilities, but not all hardware supports both internal and external SATA discs. The choice depends much on personal preferences.

Solid State drives should be OK with any machine with an internal hard disc capability, but currently are very expensive with few advantages in this application to offset the high cost.

In choosing size, bear in mind that HD recording typically uses a little over 2 GB per hour, compared with just under 1 GB per hour for SD.

5.5   USB Connections

Most PVRs have 2 or more USB connections, which can be used for:

- Additional hard disc(s)
- USB stick for
  (a) Loading new software if the OpenVix upgrade is not what you want, or not working, or involves changes to Linux kernel.
  (b)Acting as a low latency HDD for things like Picons or EPG data if you are running low on Flash memory
  (c) A means of transferring recordings etc to/from a non-network device
  Etc
- WiFi adapter
- USB tuner(s)
- K/B & mouse (for some plug-ins, I think)

The number you require will very much depend on your intended use.

5.6   Processor Power & Memory

It is very difficult to give any firm guidance, as the need for the faster models with more memory depends on intended use and importance of rapid response times when changing channels.

5.7   Front Panels

These vary between small monochrome text-only displays to colour graphical displays that can display logos or even a TV picture. The value of the latter will depend on personal preferences and normal viewing distance.

6   WHICH USER INTERFACE?

There are a number of user interfaces available for Enigma2 receivers in addition to OpenVix, including:

- openATV - forum is in German
- OpenDroid - forum is in Italian(?)
- EGAMI - Spanish(?)
- OpenHDF - German
- openMips - German
- OpenPli - UK
- SIF - Italian(?)
- OpenSpa - dodgy website according to McAfee so not investigated

I have not investigated OpenPli to determine its merits relative to OpenVix.

7   POINTS YOU NEED TO UNDERSTAND

7.1   Settings

The major system settings can be found at Main menu -> Setup -> System, with more specific settings accessed from many pages using the Menu key. It is not always obvious to me which location to find particular settings - for example I initially expected the trashcan (i.e. recycle) setting to appear at Main menu -> Setup -> Recording and playback settings, but they are to be found at List -> Menu -> Menu.

7.2   Recording Limitations

It is possible to record at least eight services simultaneously, compared with the Toppy's two. Like the Toppy you need a different tuner for each mux from which you wish to record, but suitable receivers are available with 3 or even 4 tuners and you may be able to add even more using USB tuners. The availability of the 5 primary services on the HD mux reduces the number of tuners required if much of your recording is from these services. It is my experience that without any clash avoidance logic and 3 tuners clashes occur less often than un-resolvable clashes occur on the Toppy - perhaps once a month - but this will depend a lot on your viewing interests.

7.3   Skins

It is important to appreciate that OpenVix skinning supports a much broader range of features than MyStuff, which is limited to colours, with a restricted choice of key allocations separately available. OpenVix skins additionally allow you to:

- Change key allocations at will.

- Change the layout of displays such as those for file lists and EPG.

- To a limited extent, change the data types displayed.

and extend to the front panel displays. My main niggle about the default skin is that the fonts used for settings on the screen, and for all aspects of the front panel, seem to assume a much shorter viewing distance and/or larger TV than I have, but use of the Open Webif (see below) largely overcomes these problems. Changing skin is can be as traumatic to the family user as changing PVR, so I recommend staying with the default skin until such time as you are thoroughly familiar with how the box operates.

7.4   Bouquets

While these perform the same role as Favourites on the Toppy, it is important to appreciate that they also provide the mechanism for defining LCN-style numbering for the services. The order in which services appear in the EPG is the order in which they appear in the default bouquet, and the position at which they appear in that bouquet defines the number to be entered when changing services[3]. Thus if the order in which they appear in the file happened to be:

> ITV 3
> BBC 4
> Drama
> etc

(a sequence not unlike that which would occur in the "Last Scanned" bouquet) then pressing the 1 key would select ITV 3, 2 would select BBC 4, 3 would select Drama. To make matters worse, my list of last scanned TV services starts with some adult services. Thus rather than being a frill that few use on their Toppies, well ordered bouquets are virtually essential with OpenVix.

7.5   Scanning

As indicated above, scanning for received services is an area where the satellite parentage shows. The basic scanning provides the same features and similar problems[4] to those of the native Toppy scanning when duplicated services are encountered. A further problem is that a "Last Scanned" bouquet is produced by each scan with services in the order they happen to have been found, which will not be LCN order. The only bouquet editing feature I have found is in the OpenWebif Plug-in, but that looks to be far from friendly for major edits and re-ordering. Scanning individual frequencies potentially solves the duplicate services problem, but only leaves a bouquet containing the services found on the last frequency.

The alternative "AutoBouquetMaker ("ABM") plug-in which is bundled with OpenVix scans in a similar way as the Toppy's FastScanGui TAP, allowing you to select any one of the ~60 primary transmitters. It produces LCN-ordered bouquets for the TV and Radio services and gives some options for suppression of groups of services (e.g. adult). The snags are that:

- Only ~90% of households are officially served by the primary stations, with 8% served by fill-in stations (and 2% have no Freeview)[5].

- The bouquets, and so the EPG, list all services on all muxes transmitted by any station in the region, whether or not available locally. Attempting to tune into a service not available in your area gives an error message with no indication of the possible cause.

For those reliant on the fill-in stations the problems can be solved with some messing around with files that is outside the scope of this note. (I have been doing some experimentation with both ABM and the basic scanning under conditions with duplicated services, but recently have been diverted to other issues - I hope eventually do some more work and to publish the results and suggested work-rounds).

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[3] Dummy entries in the bouquet list are used to represent unused LCNs.
[4] Duplicate services from another region are not rejected. When duplicates are detected from the same region, only one is kept but I **suspect** it is the last one seen rather than the one with the best signal.
[5] Values taken from http://www.digitaluk.co.uk/operations/multiplexes.

7.6   Open Webif Plug-In

The Open Webif Plug-in is an very useful facility that is bundled with OpenVix. It allows you to perform many control and monitoring functions from any PC connected to the same network as the PVR. It takes the form of a web page that can be opened by most browsers - I have run it on both a PC and on a Raspberry Pi. It provides a more convenient user interface than the screen + Remote Control Unit (RCU) by allowing use of mouse & keyboard, smaller text relative to screen size, and many operations can be performed with the PVR in Standby, or without affecting viewing of recordings or live TV.

The available features include:

- Viewing the EPG and setting, amending or cancelling timers or auto-timers
- Monitoring available recordings
- Editing Bouquets
- Adjusting many of the PVR settings
- Initiating streaming of live TV or recordings to the PC
- Switching to & from standby (but obviously not from Deep Standby!).

plus a feature to simulate RCU key presses and monitor the picture being displayed on the TV including OSDs but at a maximum update of ~1 per second . It is started by simply entering the LAN address of the PVR into the browser address line (e.g. http://et10000/ or http://192.168.1.9/). I have found it invaluable, but have failed to find a manual to help me understand any of the finer points, so any other criticisms may be misguided. Appendix 2 shows some screenshots illustrating its use.

N.B. You need to enable JavaScript in your browser to make use of OpenWebif. During the first half on 2016 it did not work with the then-latest Internet Explorer.

7.7   Timers

The "ordinary" timers are very similar to those on the Toppy, but you should note that there is no facility equivalent to MyStuff's accurate bookmarking that allows replay to start at the actual programme start time. One point to note is that when setting timers (or auto-timers - see below) the appropriate symbols do not appear on the EPG screen till you cause a screen refresh by moving programme. If you study the timer file, you will find that expired timers are not deleted immediately, but kept for a user-selectable time as a list of recently made recordings for use by AutoTimer.

The Auto-Timer plug-in, which is bundled with OpenVix, provides functionality loosely equivalent to MyStuff text searches. However true series linking cannot be implemented unless/until Enigma2 is changed to extract the "CRID" data. It should be noted that once timers have been set they are not reviewed to see whether clashes found later can be resolved by removing padding, changing SD to HD or v.v., or recording a later showing.

When setting timers manually, or creating new autotimers, warnings are given of resultant clashes, but where the clash arises from an old autotimer and new EPG data, resolution is dependent on the user checking the EPG.

7.8   Picons

There is a video showing the key sequence needed to download picons (Main menu -> Plugins -> Green (to download more) -> Picons), but the Freeview ones are no longer available by this route. I downloaded my picons from here, picking the "snp", 100x 60, "hardlink.tar.xz" version to my PC, and then installed using method 2 on this page but using Saba rather than FTP to transfer the filesf rom PC to PVR.

As with MyStuff logos, picons are matched using service names. Most TVs recognise changes to service names as soon as you tune to the relevant mux, but (fortunately?) OpenVix does not do so till you rescan, at which point you will need an updated picon set if any names have changed.

7.9   Software Backups & Updates

Menu -> Setup -> Vix -> Backup Manager allows you to save and restore both software and settings (by default to a USB stick) on either a one-off or regular basis. I strongly recommend you use this prior to any software updates or making major changes (e.g. new skin) so that you can easily revert if things go wrong.

Somewhat confusingly, there are three routes for updating the PVR software:

- Download onto a USB stick using PC etc, and then reboot the PVR with the USB stick plugged in.

- Menu -> Setup -> Software Update, which cannot be used for updates of the Linux kernel, but provides a faster update route for minor updates.

- Menu -> Setup -> Vix -> Image Manager -> Yellow, which allows you to download any of the recent OpenVix versions onto a fitted USB stick which you can then select and "restore" using the Blue key, and allows settings to be carried forward from a previous backup (except in the rare cases where the settings format changes).

7.10   Recording Files

Both the Toppy and the Enigma2-based PVRs record the audio & video in the commonly supported ".ts" format, almost certainly because this involves minimal processing of the transmitted data streams. However they take quite different approaches to recording the associated information on the recording that we expect to see when looking for a recording to play (e.g. programme title, description, and amount already played). The approaches are:

- Toppy: Adds this information as a header to the ".ts" data to form a ".rec" file.

- Enigma2: Creates a series of other files with the same base filenames but different extensions.

The Enigma2 file extensions and their contents seem to be as follows:

- ".eit": A binary file containing much of the same information as the ".ts.meta" file below but taken from the EPG data so times refer to the programme not the recording and thus omit padding
- ".ts": The audio & video data.
- ".ts.ap": A binary file I don't understand
- ".ts.cut": A binary file I don't understand
- ".ts.meta": This is a text file containing data such as service code & name, programme name, programme description, start date & time, and duration (but the last is sometimes blank in which case the data seems to be collected from the ".eit" file).
- ".ts.sc": A binary file I don't understand

but not all these files are created every time. Some additional information can be found here. Only the ".ts" and ".ts.meta" files needs to be created to allow them to be viewed in, and played from, the recordings list. If you wish to convert Toppy ".rec" files it the fixed length header needs to be deleted to form the ".ts" file, and the "ts.meta" created from the header information.

The base file name takes the form of date, time, upper case service name, and uppercase programme name separated by spaces and hyphens, and then all spaces converted to underscores - e.g.

20170210_1958_-_CHANNEL_5_HD_ - _NEW_CELEBRBITY_CARRY_ON_BARGING.ts

but it would appear that the information therein is not used and any filename will work (provided it is used consistently across all files associated with one recording).

7.11   Auto-Filing

I find the auto-file feature in MyStuff searches to be of great use - I guess more than half my searches use this feature. There is an OpenVix feature to record to existing "bookmarks" (effectively recording subdirectories), but these must be set up in advance which is a nauseous procedure using the screen + RCU and (as far as I can see) not possible via OpenWebif. However you can edit the destination directory ("location") for timers and autotimers in Open Webif to define any subdirectory you desire, which will be created if necessary. It is important that the "location" string includes a final slash, uses Unix-style forward slashes, and includes the whole directory path starting with "/media/". Leaving the location field blank puts the recordings in the default recording directory.

7.12   Streaming

Streaming is initiated by the other device addressing port 8001 of the PVR with a file name or service identity. Open Webif allows either full or reduced resolution to be selected, opens the stream using the application which has been associated with the ".m3u" file type (e.g. wmplayer on Windows). Alternatively you can open stream directly by with wmplayer (and presumably Linux equivalents) by entering either:

- Live TV/Radio: 'http://192.168.1.4:8001/" (less quotes) followed by the relevant service reference, which can be obtained by selecting that service, going to Main menu -> Information -> Service .

- Recordings: "http://192.168.1.4:80/file?file=" (less quotes) followed by the full path for the file to be played.

into the address line. Streaming works with the PVR in Standby, but not Deep Standby. The video does not include any OSDs that are showing on the TV screen.

I am not sure how many simultaneous streams can be provided - I have had two working successfully at full resolution using a 100 Mbit/sec wired LAN.

7.13   Oddity when Trying to Switch To Standby modes

I have come across 6 different ways of switching to one of the standby modes:

1. Via the menu system - to either normal or deep standby.
2. Via the RCU (to normal standby only - pressing the key in standby takes you to normal operation)
3. Via the front panel (ditto)
4. Via Open Webif Standby indicator (top right hand corner - to normal standby only)
5. Via the Open Webif power menu - to either normal or deep standby.
6. Via Power Timers - to either normal or deep standby.
7. Via (programme) timers - to either normal or deep standby.

If the menu "system" is open at a page with more than just navigation options, the EPG is open, or the recording list open, then it would appear that:

- 1 does of course work as otherwise there would be no point having it!
- 2 & 3 do not work
- 4 & 5 do work.
- I suspect 6 & 7 do not work as that would explain why I have found the power timers and timer "after event" actions have been unreliable at times.

so it would appear to be important that you close any OSDs when you finish rather than just switch off the TV as I tend to do with the Toppy. If anyone knows how to make switching to standby work for all menu etc states by all methods I would be delighted to hear.

8   MORE ADVANCED FEATURES

8.1   Telnet/SSH

You can interact with the PVR at the Linux level using a Telnet/SSH program such as PuTTY on a PC and a default user name of "root" (no password being required unless you change the defaults). The full range of Linux commands are available, but 2 are of particular use:

- "init 4" stops the Enigma2 and OpenVix processes, allowing access to data areas in a controlled manner, saving the data from RAM to Flash memory.

- "init 3" restarts Enigma2 & OpenVix.

as discussed below.

8.2   Linux Password

If you have set up your router to enable internet access to the PVR (e.g. to allow streaming to outside your LAN), it is vital that you change the root password (using Telnet/SSH & the "pwd" command) to something that is unlikely to be guessed. Some people might argue that you ought to do this anyway, but I have not.

8.3   Samba

This feature lets you view and modify the PVR files from a networked PC. To enable it go to Main menu -> System-> Network -> Samba Setup and press OK, then OK again having selected "Yes" at the "Your ..will be restarted" message HAVING REMOVED ANY USB STICK CONTAINING AN IMAGE FILE IF YOU HAVE JUST FLASHED THE PVR FROM USB. On Windows, you then use the File manager "Add a network location" option to connect to the PVR.

It is important to appreciate that Samba monitoring the flash memory rather than RAM, the data files being updated periodically and on closing down OpenVix & Enigma2. The flash version is loaded into RAM when Enigma2 is started. Thus file contents can only be considered up-to-date after issuing an "init 4" command via Telnet or SSH. Any changes made to data files are likely to be ignored unless made between "init 4" and "init 3" commands. Software is transferred from flash to Ram on boot or "init 3" and never v.v., so can be updated at anytime but will not be effective till re-boot or "init4" followed by "init 3".

Appendix 3 summarises some of the system files which you may wish to investigate (or even modify). All are text files with Unix-style line endings and formats that are reasonably self-evident.

8.4   Power Timers

These allow you to switch between normal and the standby modes at predetermined times each day. I set one up to bring the PVR up to standby at 18:00 and return to deep standby at 22:30 thus ensuring an EPG & autotimer update before the main recording period but spending most of the day in the power-saving deep standby state. They are set up at Main menu -> Timers -> PowerTimers with a fairly self-evident series of selections.

N.B.1 If you have left the main menu system open on a non-navigation page or are viewing the EPG or File list, power timers calling for a switch to standby do not seem to be effective - see above.

8.5   Screenshots

If you wish to take a screenshot using a PC on the same network as the PVR, open "http:\\a.b.c.d\grab?format=jpg" in a normal browser with "a.b.c.d" is replaced by the network address or network name, and the slash direction is reversed for Linux. You can then use the standard PC tools such as "printscreen" or left-click + "Save picture to" to save the picture to file on Windows. The screenshot includes any OSDs present on the TV screen. This feature does not work(nor would it make sense!) in either Standby mode.

Alternatively you can view the current video with Open Webif, and save it using the same technique.

8.6 Log Files

Log files are produced automatically whenever there is a crash, and optionally[6] at other times. In the event of you reporting new problems of any sort, you are likely to be asked for the associated log file. They are text files held @ \home\root\logs\[7] with self-evident file names that reflect the date & time the file was started. These can be accessed by Samba or FTP, but you must stop enigma2 first with an "init 4" to ensure you have the latest versions.

8.7 Unofficial Software Changes

The majority of the user-orientated software is in Python, which is run interpretatively from ".pyo" files. These are Python code ".py" files with all the redundant information removed to speed loading. If you place a ".py" file in a directory with the same base-name as a ".pyo" file, the on the first reboot a new ".pyo" file will be created from the ".py" file, overwriting the old and this will be used until itself is overwritten (but I strongly recommend that you change the original ".pyo" file name rather than let it be overwritten in case you change your mind!). However a ".py" file with a new base-name will be ignored.

"birdman" has published some amended Python files that you might wish to try - these are here. Alternatively you may get brave and do some modifications yourself!

N.B. Any changes and your ".py" file will be lost when you next do a software update[8].

8.8 VPS Plug-in

This is intended to update timers in the event of late schedule changes - e.g. over-running sports programmes, but I understand is not compatible with Freeview. Timers generated from auto-timers will be updated by the AutoTimer plug-in when it runs, but that is normally not frequent enough to be sure late changes are captured.

9   SOURCES OF FURTHER INFORMATION

I am aware of the following useful sources of information:

1. OpenVix Manual, a pdf file dated 2014 with setting up biased towards satellite use, which does not seem to be being maintained or extended. There is little or no information on topics such as power timers, favourites, EPG options, etc.

2. A series of videos showing menu sequences for some key activities, but unfortunately of limited value to me as viewing videos while setting up my PVR is difficult to organise. Again these do not seem to get updated when relevant changes occur.

3. The OpenVix forum guides section, which includes links to the above.

4. List of Plug-ins, with code, but often very light on information as to what it does, or in German.

5. Pressing the RCU "Help" key while using major functions such as watching TV, viewing the EPG, and viewing the recordings list displays the action currently associated with each RCU key. Unfortunately this does not extend to help during the setting up processes, though the function of the current selection is sometimes summarised at the bottom right of the screen (dependent on the skin in use).

I would particularly like to hear of any other sources that people have found useful.

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[6] Select/deselect at Main menu -> Setup -> System -> Logs.
[7] Can be changed at Main menu -> Setup -> System -> Logs
[8] Or do some updates merely replace selected files? If that is the case your changes will survive if the file concerned is not part of the update.

EMJB

20/4/2017

APPENDIX 1

AVAILABILITY OF USEFUL TOPPY/MYSTUFF FEATURES

Feature	Available	Comments
Favourites	Yes	I have not found convenient editing facility
EPG ordering/subsets	Yes	Via Favourites/bouquets
EPG grid view	Yes	With mini-live view, depending on skin
EPG prog description	Yes	For currently selected programme
EPG time to prog start	No	
14 day EPG	?	Import from Schedules Direct?
Now & Next Info	Now only	
Programme progress	Yes	Via multi-EPG only
Text search	Yes	Currently lacking any helpful documentation
Series link search	No	Hints that it may become available soon
Search auto-file	No	Can manually define destination folder, but fiddly.
Search clash avoidance	Minimal	Existing timers are not reviewed to see if they can be re-scheduled to avoid clashes
Search episodes limit	Partial	Limits to first n, not deleting oldest and recording newest
Timer padding	Yes	
Auto-extend late running progs	?	VPS plug-in provides this facility, but appears incompatible with Freeview
Archive sort options	Yes	
Archive - prog duration	Yes	For currently selected recording only
Archive - prog descr	Yes	Fixed small font size - difficult to read with small or distant TV
Archive multiple delete	No	
Recycle bin auto-empty	Yes	
Archive rapid delete	Yes	No appreciable delay
Playback- auto-jump to prog start	No	
Playback jumps	Yes	Programmable values allocated to numeric keys. No binary jump feature
List of recently played progs	No	
Recording edit features	?	
Recording PINs etc	No	

APPENDIX 2

TERMINOLGY USED IN OpenVix OR FREEVIEW

The following terms may be unfamiliar, or even confusing, to Toppy users:

- AutoTimer: A plug-in which allows programme series to be recorded automatically, or searches made to set timers for programmes meeting certain criteria such as a name appearing in the programme description. I have used the term "autotimers" is used to describe the actual searches.

- Bookmarks: Pointers to sub-folders in the main recording folder on the hard disc, rather than the use of the term in Toppy-speak to refer to markers indicating points in a recording such as the actual start of the programme (or perhaps it's used for both??).

- Bouquets: Groups of services - broadly equivalent of Favourites elsewhere, BUT access to the EPG and service number allocation when selecting services via the numeric keys is via the default bouquet - no bouquet means no access to the EPG or viewing live TV (more details in the main text)!

- Couch Flash - a software update where the new version is downloaded and installed using the software update facility rather than installing it from a USB stick.

- Deep Standby: A low power state where all processing is stopped except for an "alarm" set to wake the PVR up for the next timer - equivalent to Toppy Standby. In this state changes to the programme schedules will not be recognised.

- Directory: A synonym for "Folder" - unfortunately there was a tendency to use the two terms in a random fashion, even within one area of the user interface, but this has improved somewhat in recent updates.

- Folder: See "Directory".

- Frequency: The Freeview signals are transmitted in the form of digital strings for 10-20 TV services (and/or more radio services) multiplexed together to form a single data stream (called a "mux") that is transmitted on a single frequency band, the centre of which is referred to as the frequency for that mux. Adjacent transmitters use different frequencies to transmit the same mux to avoid interference. The contents of some muxes are dependent on the region, and all contain all the Freeview EPG data for that region, even if transmitted from a site that does not transmit all muxes.

- Movie: Any recording, including radio.

- Mux: See frequency above.

- Picons: The equivalent of Toppy service logos.

- Plug-in: Equivalent to the Toppy "TAP", providing additional/replacement features and often developed by a third party.

- PVR: Generic term for any personal video recorder.

- Service: The technically correct name for what are commonly described as channels - e.g BBC 1, ITV, Channel 5, etc.

- Skins: These allow substantial changes to the appearance of the main display and front panel, and allow key allocations to be changed (but not the menu structures in most cases). A wide range of skins are available - finding one that best suits you could become a major exercise in itself!

- Standby: A state where all the processing (including EPG data collection and the AutoTimer plug-in are running), but the video out to the TV is inhibited. Streaming and Open Webif work. This gives little power saving over normal operation, and has no Toppy equivalent.

- Streaming: Transmission of video & audio (derived from live signals or recordings) over the LAN, typically to a PC or Tablet.

- Transponder: A satellite term for the device transmitting the equivalent of a single mux.

- Zap: Change the service currently being viewed.
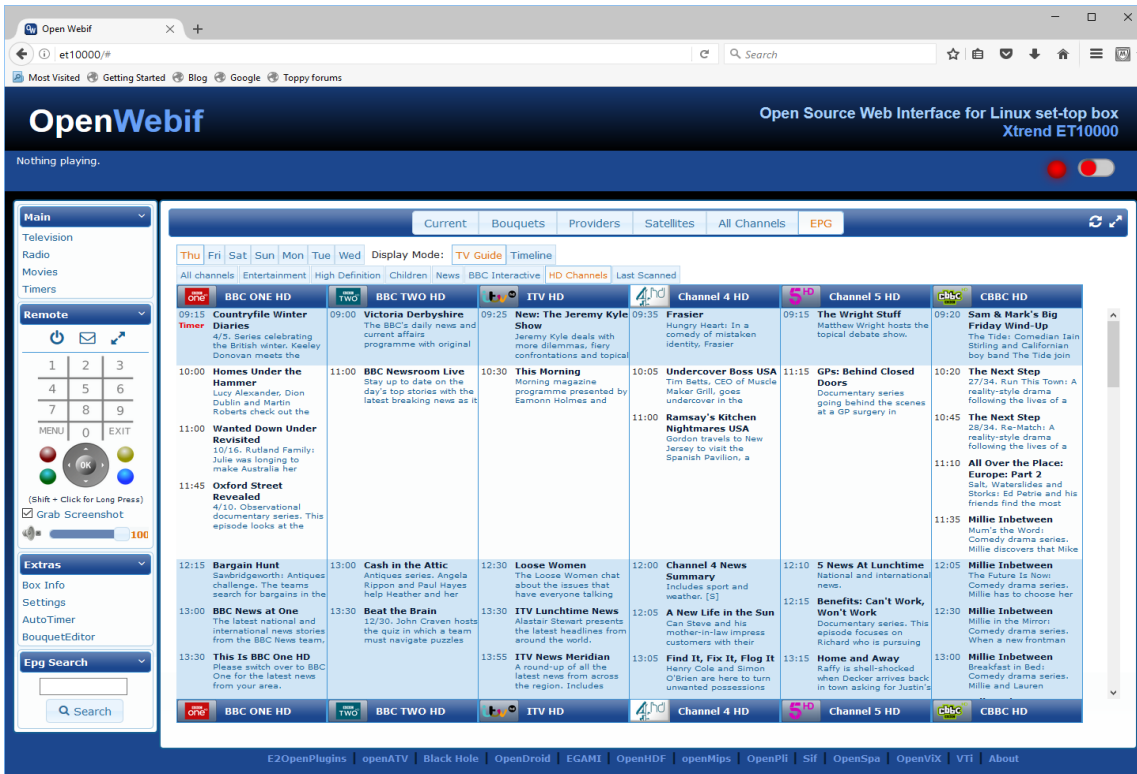
APPENDIX 3

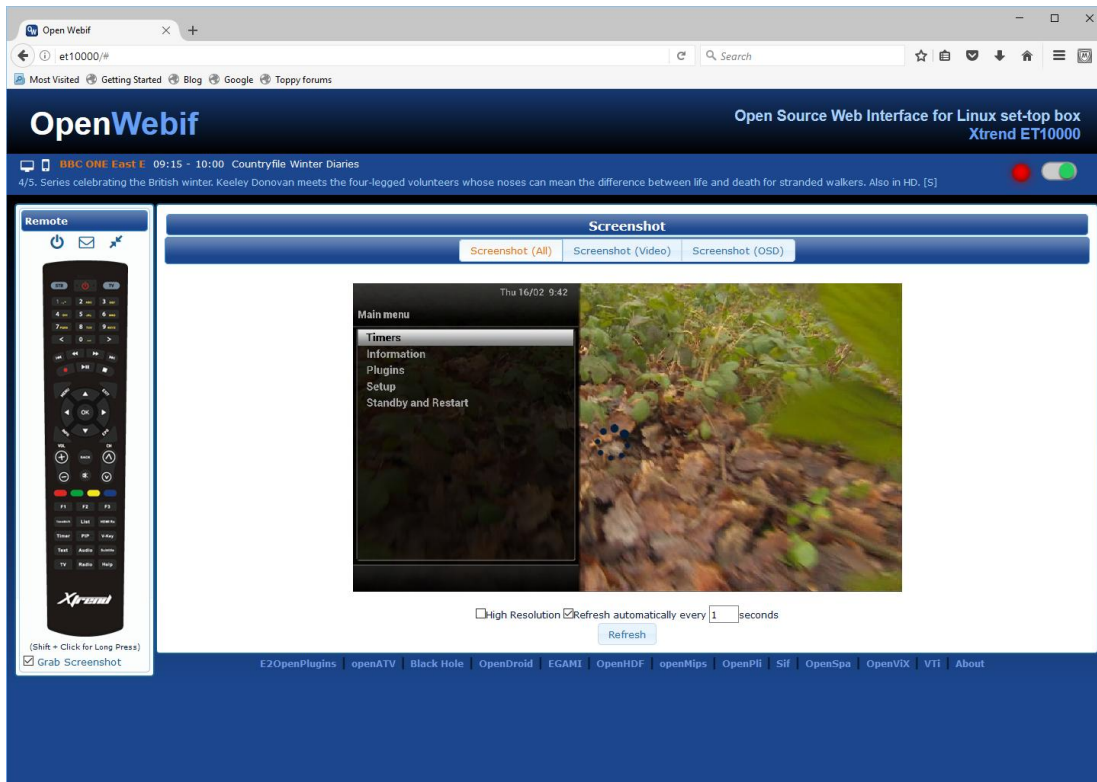## Open Webif Screenshots

Fig 1 - EPG
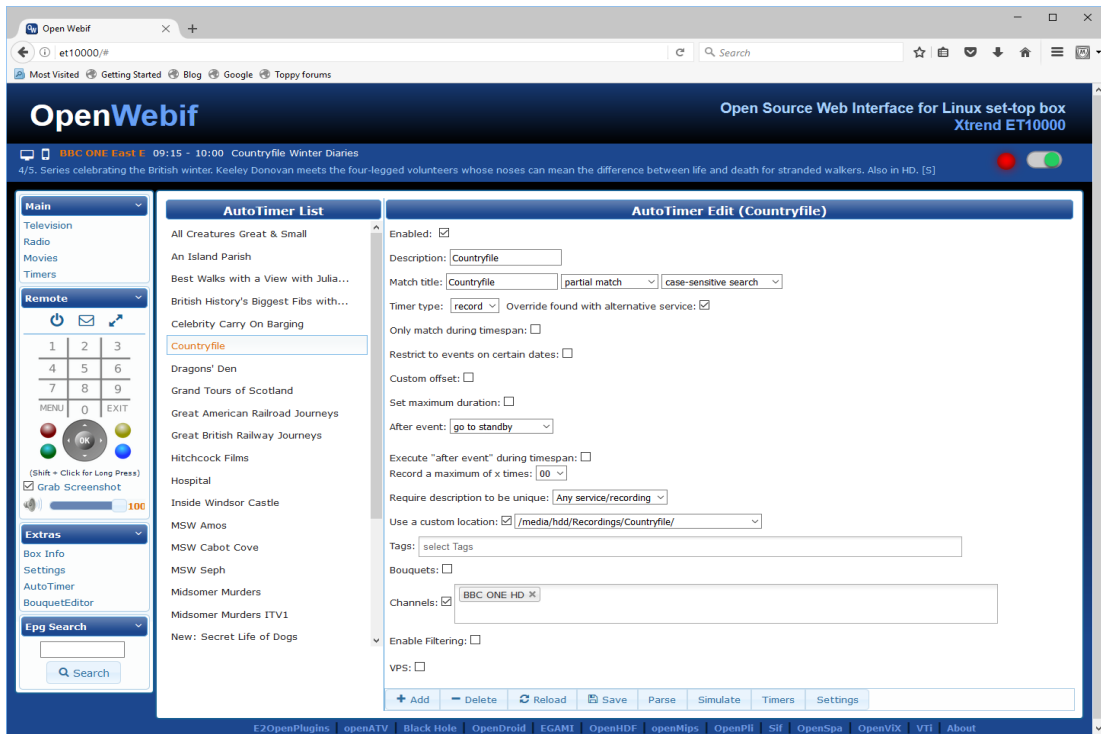

Fig 2 - Simulated RCU & Screen

Fig 3 - Editing Autotimers

APPENDIX 4

Some Useful Text Files & Their Locations

File	Location	Comments
autotimer.xml	/etc/enigma2/	List of current autotimers
bouquets.radio	/etc/enigma2/	List of current radio bouquets[9]
bouquets.tv	/etc/enigma2/	List of current TV bouquets[10]
userbouquet*	/etc/enigma2/	The bouquets themselves
lamedb	/etc/enigma2/	A less easily read version of lamdb5
lamedb5	/etc/enigma2/	Details of scanned services
*.log	/home/root/logs/[11]	Crash & normal
pm_timers.xml	/etc/enigma2/	Power timers
settings	/etc/enigma2/	All the system settings, often easily recognised
timers.xml	/etc/enigma2/	Recent & future timers

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[9] I assume the first entry defines the default bouquet used to define service numbering>
[10] Ditto
[11] Can be changed at Main menu -> Setup -> System -> Logs, though I find it difficult to see why you might want to do so.