



# DTVKit Technical Steering Committee - 2nd October 2019

**Present:** [KW] Karl Wood (DTVKit), [HC] Harriet Clarke (OBS), [SF] Steve Ford (OBS), [CA] Chris Aldworth (OBS), [JN] Jason Nash (OBS), [PE] Phil Evans (DTVKit)

**Phone:** [AS] Adam Sturtridge (OBS), [JC] Jim Carroll (Mobica), [GK] Gong Ke (Amlogic)

**Next Meeting:** March/April 2020

## Items

1. Actions from the previous meeting
  - a. Individual access to Github should be reviewed to prevent unauthorised users from accessing the code.
  - b. DTVKit Guidelines for up-streaming large changes/contributions
  - c. Test Suites and Compliance
  - d. Mantis
  - e. Android
  - f. DTVKit Forum
  - g. Raspberry Pi
  - h. HARMAN Media Framework
  
2. September Release
  - The release for September has been slightly delayed due to still being in the testing phase.
  - The release will be provided in October, but no specified date just yet.
  - The code will be pushed to the DTVKit repositories on GitHub.
  - **Nordig**
    - The release will include added support for Nordig compliance for the core DVB stack. Our Nordig test suite has been supplied by Sofia Digital. This includes features such as Frequency List Descriptors, LCN handling and dynamic service updates.
  - **Android N**
    - For the first time, DTVKit will be tagging it's Android repositories for version control.
    - The Android N repository includes zapper integration, support for parental control, multi-language support, dynamic service updates and EPG sync changes.
  - **Android P**
    - The DVB stack has been integrated into the architecture to be compliant for Treble. This includes a HIDL integration of the DVB stack and includes the same features as the Android N release (zapper features, subtitles etc.). The repo for Android N will be deprecated when Android P is finalised.
  - **Android P Limitations**
    - We have ran into some Silicon platform problems when working to integrate Android P with the DVB Stack. We are currently in the process of fixing them and engaging

with Silicon partners to get these issues resolved. Android's sideband architecture relies on the implementation from the Silicon manufacturer.

- Our implementation on Broadcom, Amlogic and HiSilicon is working fine for versions N/O, but the migration to P is still in process.

### 3. DTVKit Roadmap

[PE] - The main aim for us at the moment is to determine how we can enable our members to have access to applications e.g. Netflix, Amazon etc, or how we can improve our framework for this to happen. We currently have two options - RDK, or creating our own RPC wrapper. We will update the members in November/December 2019 on the direction in which we plan to take. In the meantime we will continue to make test streams and improve the test streams.

### 4. CI+ Update

- Ocean Blue Software are currently working on CI+. There are currently two repositories within DTVKit which are private (due to needing to be a CI+ member to gain access to them).
- The CI+ 1.3 repo will soon be deprecated, as this cannot be certified anymore. We will send out a notification to all members when this happens.
- CI+ 1.4 has been updated for ECP and bug fixes. OBS donated the 1.4 ECP release as a reference.
- There are no available platforms to test this on yet, but it has been designed with several customers in mind. We hope to announce certification in the next few months.
- DVBCore has been brought into line with CI+ - the repo's are now more synchronised.
- OBS is actively developing a CI+ 2.0 stack, with the plan for this to be ready by the end of 2019. This will then be made available to DTVKit members.
- CI+ LLP is now in the process of formally ratifying the CI+ specification. OBS has engaged in a project with Eurofins on the testing side. OBS hope to have the stack by the end of this year. LLP is putting the tools in place for certification by the end of the year with market uptake for CI+ 2.0 by the end of 2020.

### 5. Testing

- DTVKit are in the process of creating their own test streams
  - These streams will enable members using the DVB stack to check that integration was valid.
  - We are not developing test streams for full DTG compliance
  - We will be creating tests that will test the integration of the hardware platform
  - We are not focussed on conformance testing at the moment
  - We have an infrastructure in place now to generate basic streams. Advanced features are next in the roadmap. This will include features such as subtitles, audio description, full EPG scheduling, etc.
  - We will circulate the test specification with the minutes and presentation - any feedback will be welcomed.
  - If any member has a specific feature they would like us to include in the test specification, then please get in touch with us
- Gtest repository in DTVKit
  - The Gtest repository provides tests for your platform code as part of integration developed platform code for porting of the DVB stack.
  - You can use Gtest tools which tests various elements of platform code.
  - It checks they function properly before you proceed further with integration.
  - The tool helps to mitigate bugs, identify problems sooner and cuts down on debugging time.
  - Currently the repo includes tests for the core elements based on Google tests, but this can be extended.

## 6. Generic DTVKit Developments

- 64-bit build of DTVKit Application
  - We have improved support for this
  - Embedded platforms are now going 64-bit
  - 64-bit version is now available in the repo's and builds out of the box
  - Environment variable options to allow MHEG to be included
- Reference build App
  - KW has created scripts that allow DTVKit to build automatically

Action: SF to review KW's scripts  
Action: KW to upload scripts which allow for easier building of DTVKit  
Action: HC to upload documentation onto Wiki once KW scripts have been uploaded.
- Prototyping Platform
  - Interest in Raspberry Pi
    - OBS investigated this but it has proven difficult due to the architecture and the open source components that they were reliant on. Using RPi as a Desktop including DTVKit components was not quick enough for real time.
    - Looked into Wayland but there were problems with the releases for the Pi.
    - Looked into RPi 4 - we can now build DVBCore with the App and video playback on SD is fine. However, native mode still does not work.
  - Alternatives: Odroid platform based on the Amlogic chipset.
    - This supports Linux and Android
    - DTVKit have ordered a sample
    - We will provide feedback to members when we have looked into this further.
  - Alternative: Gstreamer
    - Gstreamer has a standard dev frame buffer sync device which could output video.
    - DTVKit looked at gstreamer a while back due to interest from members that they wanted a generic porting layer
- RPC Layer and Media Framework
  - The RPC layer is easier to integrate and has a video encoding API that is common across silicon vendors
  - It would be an off the shelf DVB integration
  - HARMAN donated a Gstreamer based player into DTVKit which gives potential for media player MPEG-DASH decoding and HLS. It is currently only a proof of concept and there is still a lot of work to be done for it. OBS have not yet had time to look at this in more detail.
  - To use RDK as a platform (alternative to Android), we are looking at this in more detail to see how feasible a Gstreamer implementation of the DVB stack could work.
  - [PE] DTVKit are investigating RDK to see if this meets our needs.

## 5. Voice control

- DTVKit had a demo at IBC, working with DiscVision
- The voice control SDK can be integrated on devices - currently supports Amazon Alexa and Google Home
- Currently we have a proof of concept which has basic voice commands implemented, and is integrated with the DVB stack.

## 6. Moderation

- Android repository moderators
  - It is still on the agenda and something that Mobica are keen to do
  - This would be a good way for Mobica and DTVKit to collaborate

Action: JC to chase this internally

## 7. Mail Lists, Forums, Mantis Improvements

- [CA] On the forum we had some issues with people not using it
  - The idea is to implement email reflectors where the main notifications section is an email reflector which when any new company joins DTVKit, they will have at least one engineer on that reflector.
  - Emails will be sent automatically when a post is added to the topics you are subscribed too.
  - There will be a main notifications section, and also sections for each of the different modules of DTVKit.

Action: [CA to look into implementing email reflectors](#)

- Mantis
  - Moderators were not always getting notified when there had been changes.
  - We have made a change so that each moderator is a manager, which means they get any notification on mantis that is to do with that module.
- Github
  - Notifications are now back on Github
  - We have updated the wiki on how you can subscribe to notifications on mantis and Github.

## 8. Test Suite Compliance

- One of our customers is going through CI+ ECP integration
- DTVKit has been doing work to improve Nordig compliance
- Nordig updates will be provided within the latest release
- PVR testing to commence for Nordig compliance
- We are analysing DBook 11's requirements vs DVBCore's current features to see if there are any gaps. If there are gaps, we are looking to close them.

## 9. Next Release and AOB

- March/April 2020
- [JN] we are trying to update the TSC so it is relevant to members, so any feedback would be appreciated.

10. Mantis issues

**mantis-898** - SF to comment

**mantis-897** - SF to comment

**mantis-860** - API's are deprecated. Need to use new API. Close pull request if it does not merge now, as we are not doing anything immediately. It will eventually need rebasing. Leave open and [AS] will close the pull request

**mantis-866** - Bug raised by Roku. Who is expecting who to fix it? PE to explain mantis process.

**mantis-855** - SF to comment

**mantis-854** - SF to comment

**mantis-853** - SF to comment

**mantis-852** - SF to comment

**mantis-498** - USB tuner still pending

**mantis-786** - SF to comment

**mantis-785** - SF to comment

**mantis-442** - This was resolved in Saorview. Need to take the time to push up the changes

**mantis-247** - HbbTV in feedback

**mantis-592** - HbbTV in feedback

**mantis-295** - HbbTV in feedback

**mantis-778** - This issue came up in Saorview. Still needs to be resolved

**mantis-728** - Needs to be resolved. Has possibly been fixed. SF to review.

**mantis-148** - ApplicationLaunch is being removed from DBook

**mantis-435** - Still true. Leave open

**mantis-508** - SF to review