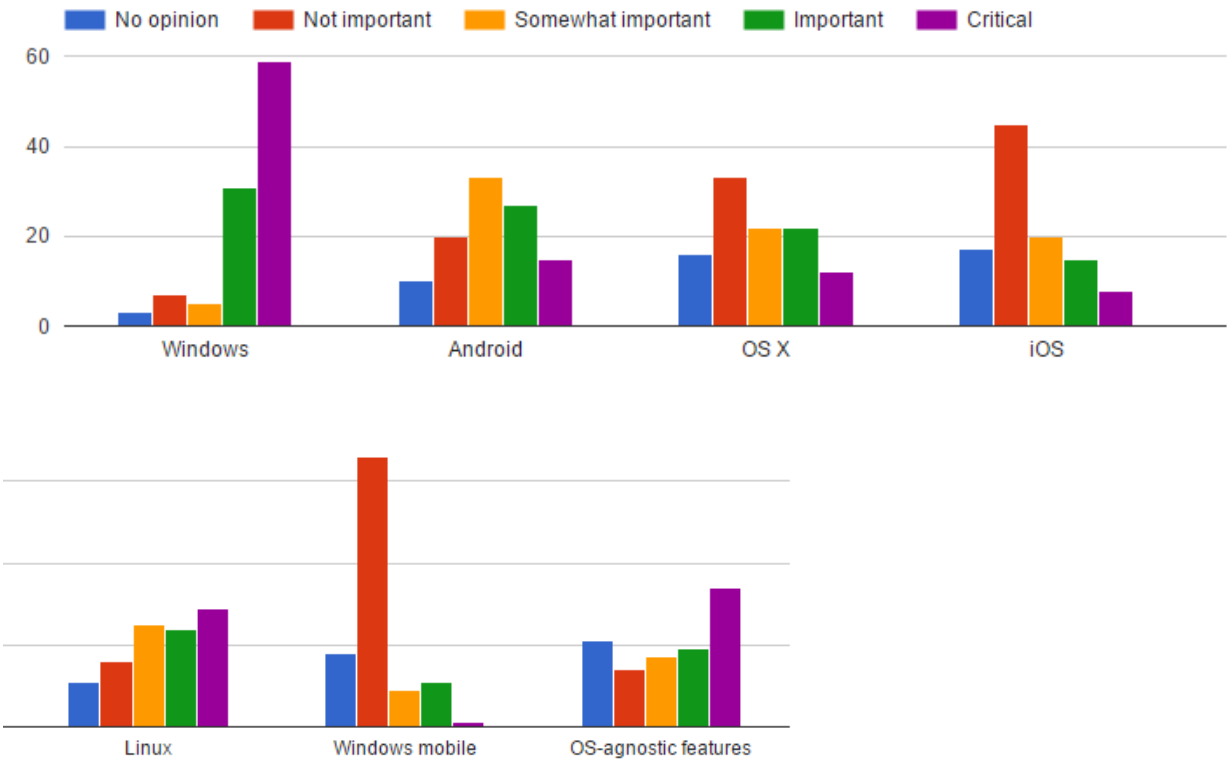
Introduction

On the week of Feb 22, 2016 an OSVR developer survey was created by Sensics and sent to OSVR developer mailing list and promoted on Reddit and OSVR chat rooms. Some 120 responses were received and aggregated by Sensics. Summary and detailed responses are below. Analysis, feedback from core team and the near-term development plan for the core team will be provided in March 2016.

How important is it for you that OSVR enhance its feature set for each of the following platforms:

Weighted average: (1=not important through 4=critical)

Windows	3.41
OS-agnostic	2.86
Linux	2.70
Android	2.39
OSX	2.13
iOS	1.82
Windows mobile	1.39



What OS enhancements would you like to see the most?

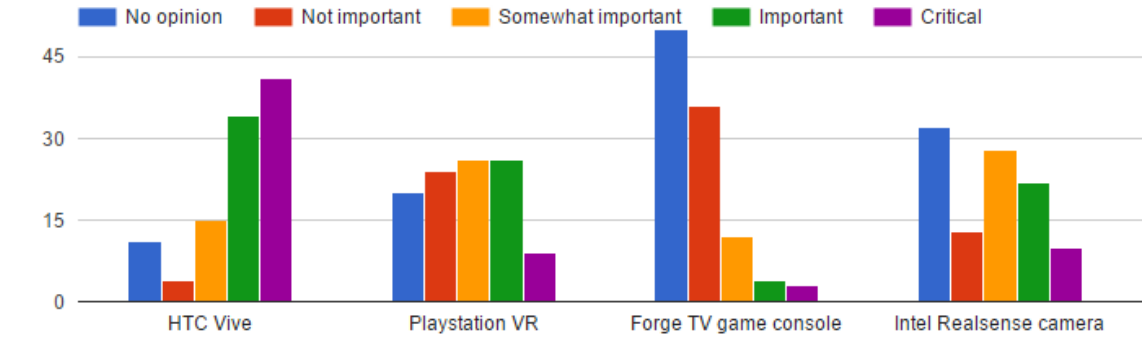
Responses sorted alphabetically

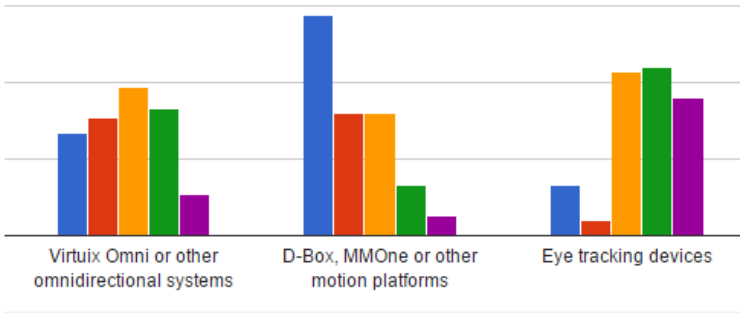
1. A unification with render manager and a guide tool to manage, test and start services and apps
2. Android support
3. Basically, just not have Linux as a second class citizen and proper integration with engines (UE4/Unity/whathaveyou), and also a setup procedure that doesn't make jump through hoops for hours on end.
4. Better documentation, more tools and simple examples, Ways to interact with the OS while wearing the headset
5. Better firmware update support for Windows 10
6. Distro packages or a saner build system
7. Easy to use software.
8. Everything is just fine!
9. Full and easy integration with SteamVR for Windows and Linux
10. Get a build working on Linux
11. Increased native game support.
12. Lighter drivers
13. Low latency and low specs requirements. (Yeah I know, this is the Holy Grail)
14. Low resource use, auto-launch server from user app
15. Maintain feature parity across all platforms (specifically Mac, Windows, and Linux).
16. Once you guys have Lighthouse integration, which I think is easily the most important feature for VR headsets, what I would love to see is more tracking options for Lighthouse. I love the controllers HTC uses, but I miss seeing my feet. I do not even plan to use them for game mechanics, just some form of representation to deepen my immersion. Of course those extra tracking points should be as versatile as possible! I would like to track a chair too! In a best case scenario you get something like the ring on the Pre controllers to detach and attach to other devices. Especially with props that emulate in game item haptic and weight distribution.
17. OS X
18. OSVR core auto updater with latest build. Downloading the latest build every few days becomes very annoying. AlsoOSVR integration to the Leap applications is critical.
19. OSVR should auto detect and install your hardware
20. OSVR server as a system service (on Linux and windows) would be useful.
21. Positional tracking/HDK camera support!
22. Primarily interested in Linux support for my app development needs. OSX seems like an non-compelling platform for the foreseeable future given its hardware and OpenGL limitations. Android will eventually end up being a very interesting platform for hacking on.
23. Reduction in CPU usage.
24. Server like oculus one, running in background with a GUI for setup
25. Sharing of HID devices with other non-OSVR applications
26. Standard cross-platform graphics API.
27. Windows GUI for choosing server mode, options, etc.

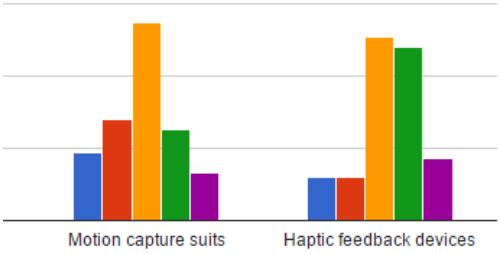
What devices would you most like to see supported by OSVR?

Weighted average: (1=not important through 4=critical)

HTC Vive	3.20
Eye tracking	2.89
Haptics feedback	2.57
Intel Realsense	2.43
PSVR	2.24
Motion capture	2.20
Omnidirectional treadmills	2.19
Motion platforms	1.94
Forge TV	1.52







Any other device or device type you'd like to see added to OSVR?

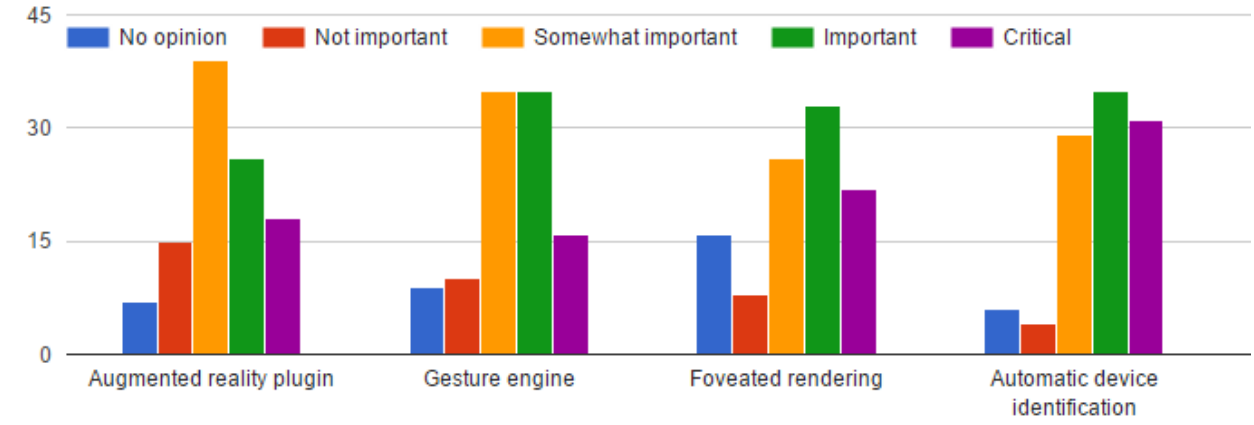
Responses sorted alphabetically

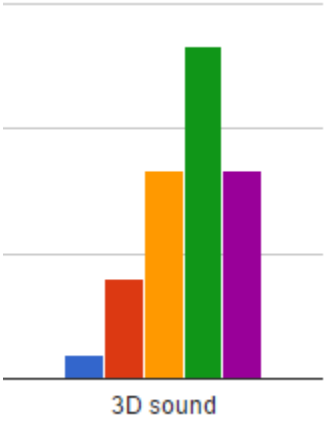
- A room scale system
- A streamed, time warped interface to Google Cardboard would allow a number of developers to cheaply try out OSVR.
- FOVE VR, possibly.
- Front facing camera like HTC Vive , 1440P screen like GearVR , Triangle headband like Oculus Rift
- I think HTC Vive support is the most important. It is as close to a baseline VR platform as is out there. Headsets only are not going to be very compelling for my development or use. PSVR might be a great thing to support if it turns out to be cheap and hackable but that's TBD. Realsense would be a great 2nd platform to develop a Chaperone analog against.
- I would like to see the motion tracking working on Linux/OSX
- In general tracked input devices. Vive and touch and PS seem to be the ones to aim for.
- Kinect 1 & 2, leap motion Orion integration
- Kinesthetic va is very cheap and has a good potential. Kinesthetic v2 is a good motion tracking device too
- LEAP :-)
- Leap Motion Application Library
- Leap motion is the best thing for virtual reality
- Leap Motions hand tracking seems to be finally there, but overall I care more about true depth cameras like RealSense or Tango to be supported.
- Lighthouse modules (or other camera type) for enhanced tracking, existing IR tracking is pretty rough.
- Lighthouse, Kinect v2, and wireless capability
- Oculus Rift
- PS Move controllers should be at the top of the list, I think, they are excellent, established and cheap.
- PS Move, Nintendo Wii mote and other motion controllers
- Razer Hydra Still not working With Unity5?
- Sixense
- Smartphone as motion controller, Valve's Lighthouse
- There are input devices (controllers, touch, keyboard, head tracking etc.) and video devices (vive, oculus, and google cardboard). The more the better - but we need it to be plug and play
- Tracking gloves
- Libnifalcon, OpenLeap, libfreenect
- With "Haptic Feedback Devices" I'm thinking specifically of Tactical Haptics

What software capabilities would you most like to see added to OSVR?

Weighted average: (1=not important through 4=critical)

Auto device identification	2.95
Foveated rendering	2.79
3D sound	2.76
Gesture engine	2.61
Augmented reality	2.50





Any other capabilities you'd like to see added to OSVR?

Responses sorted alphabetically

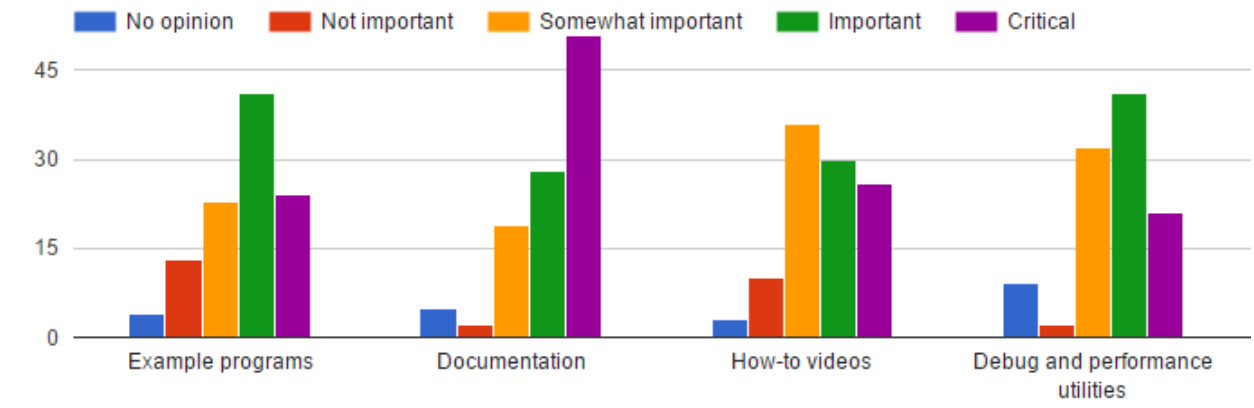
- 3D sound? Do you mean a 3.5mm audio output? If it's that I approve!!
- 75-90 Hz display
- A completely open Time warp for the render manager would do wonders for multiplatform support.
- Asynchronous Time warp

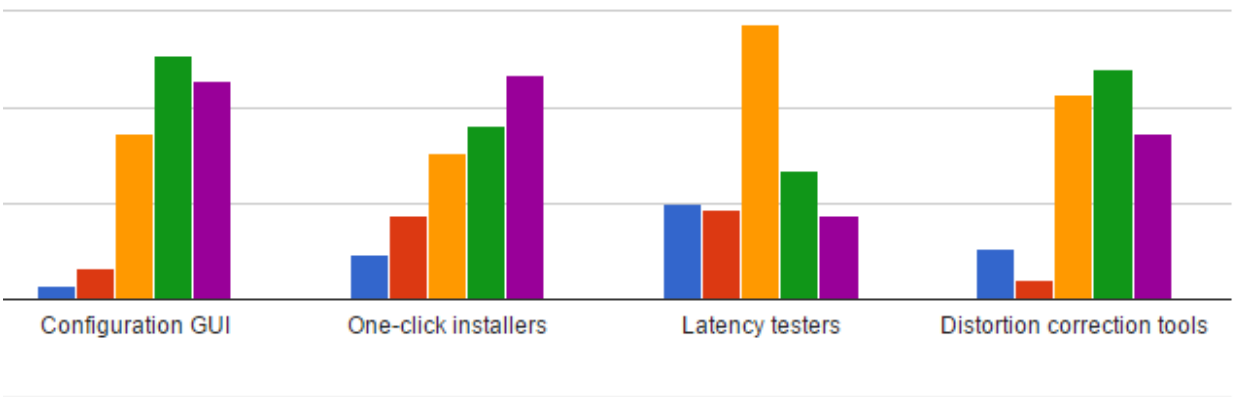
- Auto starting server/running as service
- Be cautious between what OSVR needs to support and what the game engine needs to support. I'd define a requirement set of what OSVR is meeting for a purpose and work back from there. Detect removal of peripherals by end-user (i.e. taken off head, not just unplug)
- Elite dangerous better integration
- Emulation for other SDK's so you could emulate a rift or vive. Maybe not "Officially" Supported but I think this would make leaps and bounds
- I interpreted Augmented Reality to mean a Chaperone like multi-sensor fused environment that multiple devices can contribute to. I think that's critically important for OSVR.
- I would like to see 2d to 3D conversion built in to the headset. It does not have to be good it just has to work. I have a link here with a post on what I am talking about. http://www.osvr.org/forum/viewtopic.php?f=9&t=3540
- Leap motion unreal engine 4.10 plugin
- Multi-res rendering, a la NVidia GameWorks VR
- Native support on SteamVR.
- Oculus runtime & SteamVR full support.
- Plug & play not json and configure files.
- Shouldn't the software handle 3D sound?
- There are a lot of VR features that I would like to see that go beyond hardware and are more relevant to VR in general. For example I would love a service that allows for Avatar generation that game developers can connect to so users get to use the same Avatar over different social VR apps. OSVR could be in a good position to offer such VR related services.
- Very stable SteamVR plugin. UI tools to manage the HDK.

In what areas is it important to you that we focus on enhancing tools?

Weighted average: (1=not important through 4=critical)

Documentation	3.27
Configuration GUI	2.99
Distortion correction tool	2.90
one-click installer	2.87
Debug and performance utils	2.86
Example programs	2.78
How-to videos	2.72
Latency tester	2.39





Any specific suggestions or things you would like to see in the category of developer and end-user tools?

Responses sorted alphabetically

- A lot more videos and a more artist friendly interface since we are not all programmers
- Allow applications to initiate the global OSVR server or add it as a server.
- An open source Chaperone system with broad support for a variety of sensors.
- Auto Recognition to Oculus Rift programs/games/environments
- Definitely LOVE a one-click installer (that detects/removed prior installs!)
- Emulators for competing HMDs.
- Everything should always be documented. The industry standard is usually API docs, and what makes companies like Unity shine, is adding great videos and tutorials. For OSVR to be truly adopted, it has to be easier to use than another solution. Developers need to immediately be able to tell what a bug is and what everything's role is.
- For devs and artists: Integration with graphic and artistic applications (e.g.: 3D modeling, game engines and previz pipeline) working directly in a virtual environment.
- I don't have an OSVR headset and use the Vive, so no opinion here.
- Need better examples. Hard to get started now.
- Official input emulation (mapping motion sensor, gesture to mouse, keyboard and vv..
- One click installer with step by step setup for select mode and tracker calibration
- OSVR Launcher games must be fine. Like as Razer Cortex.
- Plugins and examples for FLOSS game engines (Urho3D, BGE)
- Prepackaging a demo with osvr core would help when you're first trying to test.
- Unified OSVR Core / Configuration GUI. List of detected hardware, with various debugging/diagnostic information displayed per device.
- Ways to lower latency
- Yes easy access to Configuring the HDK as listed here https://osvrdevportal.atlassian.net/wiki/display/DD/Configuring+the+HDK

Anything Else? Please share any additional comments, suggestions or feedback you'd like the development team to know

Responses sorted alphabetically

- Barrel Distortion on off option to the Toggle side by side option in OSVR control.
- Cheers, thanks for your work so far. I'll dip into OSVR as my plans mature and Linux is a more viable platform.
- Existing IR Tracking is very rough, this will surely need some additional work. If the side/back LEDs on the HDK are so terrible, perhaps an inexpensive tracking headband could be developed to compensate.
- For Linux, I have had constant issues trying to get osvr-server to run or install on either Arch or Debian. I think there are more dependencies needed that I'm unaware of.
- For OSVR to gain the kind of momentum that it needs to be successful, it has to be work well for its intended audience. Right now it looks like that's divided into overlapping, but still separate camps of pure core developers, HDK developers, end content developers, and gamers who want cheaper VR. None of these camps can be truly happy about the outcome without the support of the other three. Highly visible milestones that address concerns for each of these camps, and updates concerning the development on those milestones would probably go a long way toward inspiring the confidence that each of these groups need. If the 'end-goal' of the whole OSVR project is to create the DirectX/Android/Etc. of VR, and with platforms like SteamVR already positioned to be the monocultureal face of consumer VR, then there needs to be a whole lot more accessible transparency in the goings-on of internal development. Having spent at least as much time as can be expected by the average end-user looking at documentation, and the various webpages, if this sort of road map exists, it isn't being well publicized.
- For the hardware itself, please look at (no specific order): * forward looking camera(s) * eye tracking * stable/lockable focal changes (on the 1.3 kits, the lenses will go out of focus all the time when not looking directly ahead - looking up or down and the smooth focus mechanism will drift) * raw data from the Bosch IMU or access to the parameters to program differently (say I only want to get gyro or acceleration data) * different lens options. Wider FoV as well as narrower (!) FoV. Wider for more immersion, narrower to get higher pixel density for different applications * Higher resolution and higher frame rate display
- Free plugins for free middleware for non-free devices is useless. We need free alternatives to devices like the Leap Motion or at least free drivers for them.
- I like you guys :)
- I'd like better performance for the CPU use
- I think it is great what you guys do and I am looking forward to the time when you catch up with the current gen headsets. Right now I am missing that product that I actually care for. Leap Motion would have supplied me with an OSVR headset, but I don't see a point in cluttering my workspace as long as there is not a single USP over my existing development tools (and modular does only count when the full stocked model does offer more than the competition). My hope for OSVR at this point is that you guys fill the niche markets for peripherals! Because that is a sad to look at space for VR gamers/devs right now in the Lighthouse realm.

- I think OSVR can fill a gap in the market for mid-range desktop VR, the people that wanted a more polished version of the DK2. But for that to happen OSVR needs a much more user friendly interface first.
- I would love to see OSVR explode open source is critical for developers and consumers. I really hope I can afford a HMD soon and make content for OSVR. VR is the future and it is not going away. In less than a decade a vast majority of society in devolved countries will be wearing them "always on".
- I would love to see reverse Oculus Rift support. As in, some type of wrapper, or virtual device emulator, to make Oculus Rift only software work with OSVR, by making the software see the OSVR as an Oculus Rift. This could really boost adoption.
- I'm waiting until Lighthouse support is available before possibly buying an HDK.
- Improved time warp or whatever is necessary, to max current HMDs performance
- In my opinion, supporting Vive hardware is absolutely critical to the longevity and adoption of OSVR, and should be a top priority. Right now, most developers of consumer PC VR content want to support both Rift and Vive. As-is, since most developers support Rift first, there is little incentive to develop for OSVR because they already have Rift support and OSVR currently does not add Vive support. If support for both Rift and Vive hardware can be achieved and maintained, with regular updates following closely on the heels of updates pushed by Valve and Oculus, then the case for developing OSVR-first or for adding OSVR support becomes much more powerful.
- Increased communication and a clearly defined roadmap for development will increase consumer confidence and increase community productivity.
- It should make the HD kit a more universal platform, to emulate as much as possible (not as much as hardware but as software compatibility and options) the HMD varieties that are out there.
- It´s possible to upgrade the lenses of the Kit 1.2 for the Kit 1.3 Lenses? This one's are bigger! Seems to be easy so adjust. And some removable foam, or in any other material that could be wash. We use the HMD to clinical investigations. Anti-fog lenses. Because of the breath, (I don´t know say the right word in English).
- I've enjoyed working with OSVR. However, I've felt that the documentation has been on the partial side for someone not familiar with the structure of the interface (e.g. JSONs for server config). In places, docs and instructions do not correspond to the files included in snapshots. Development with OSVR with Unity is good and mostly hassle free, however the ability to run the server within a Unity (or any other game engine) build might make for a more streamlined end user experience.
- Keep up the good work! I think this VR system has a lot of potential as everyone's in on the development of games and programs.
- Love the effort - keep it up!
- Love the work you guys are doing! Keep it up
- Most important I believe is to have the current features supported on Linux and OSX platforms before extending features. This will allow the greatest number of developers to get involved.
- OSVR has huge potential. It is coming a long way. Some areas for improvement, the forums need major help. It needs better categories, and less moderation (it takes many days for posts to be approved). Social media engagement is always important. Documentation is critical, we need to

really define the interaction docs for things like Unity. The challenges facing OSVR are no longer as technical by nature, and much more business driven. If you guys have somewhere that we as user/developers can begin creating documentation beyond a readme - and especially if it has version tied control (so a dude working on the December branch only sees December docs) - I would be very happy to help start that process. Especially in Unity where a lot of the users are designers and less coders (for Unity, we could use Doxygen for the API, but we really should leverage a wiki of some kind for architecture points - so it's immediately accessible and editable...).

- OSVR is open. Why don't you tell us which hardware you use for the hdk1.3? There is a whole forum discussion on what display you used and nobody is able to name it.
- Please try to fix the fog on the lenses issue!!
- Positional tracking with the HDK cam on OSX is critical, as it is my main dev platform. Readymade builds for OSX would be great too, to get going developing content on OSX sadly takes quite a while.
- SteamVR updates are critical to the awareness of the OSVR. People want to play VR, but don't want to spend the high prices. If SteamVR is hard to install or use, people get turned off from the OSVR HDK.
- Thanks for the platform
- The headset needs to be more ergonomic and better ventilated, the lenses very often get foggy
- The steamVR compatibility should be the TOP 1 priority, then comes the screen's PPI. Performances and the overall quality of OSVR and its HDK is already good to me as a 3D artist but the lack of an all in one app makes things quite complicated when it comes to updating the whole kit. I am also a Cryengine user so can you please do something quicker with Crytek? I would like to get my game compatible with OSVR but can't do anything yet. Direct mode is great, default JSON seems fine by me, HDK lenses looks amazing but on the helmet Itself I hate its orange color, the lower part that touches our cheekbone is too short making the helmet leaning down and even though this is not really an OSVR issue please try to put a 1440P screen in the HDK instead of the positional camera making it optional, I don't think a lot of games will use it in the end.
- The support is very good... Thank you
- There absolutely needs to be some form of software IPD adjustment, ideally simply as a part of the HMD config.
- This platform will become very important over the next two years. Happy to support it.
- Try to have more involvement with the user base, seems like the idea is just something on the backburner and OSVR reps only show up when issues have arisen.
- Very happy with the project up till now. I would like to see more transparency on what is going on (or I haven't found where to find it), not timelines but just progress and what is been worked on, especially on the hardware and upgrades side where there seems to be almost no communication apart from when its shown at events.
- Xbox one support
- You guys are AWESOME! (So please take any/all complaints in spirit intended)