BRIDGE

SDK Description

Version 1.0

*** for Bridge Overlay SW 0.8.3**

Last update May 10th

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Introduction:

The BRIDGE SDK is a Development kit aimed at helping app makers and SW developers solve the issues arising when a user needs a Keyboard in Virtual Reality.

Motivation:

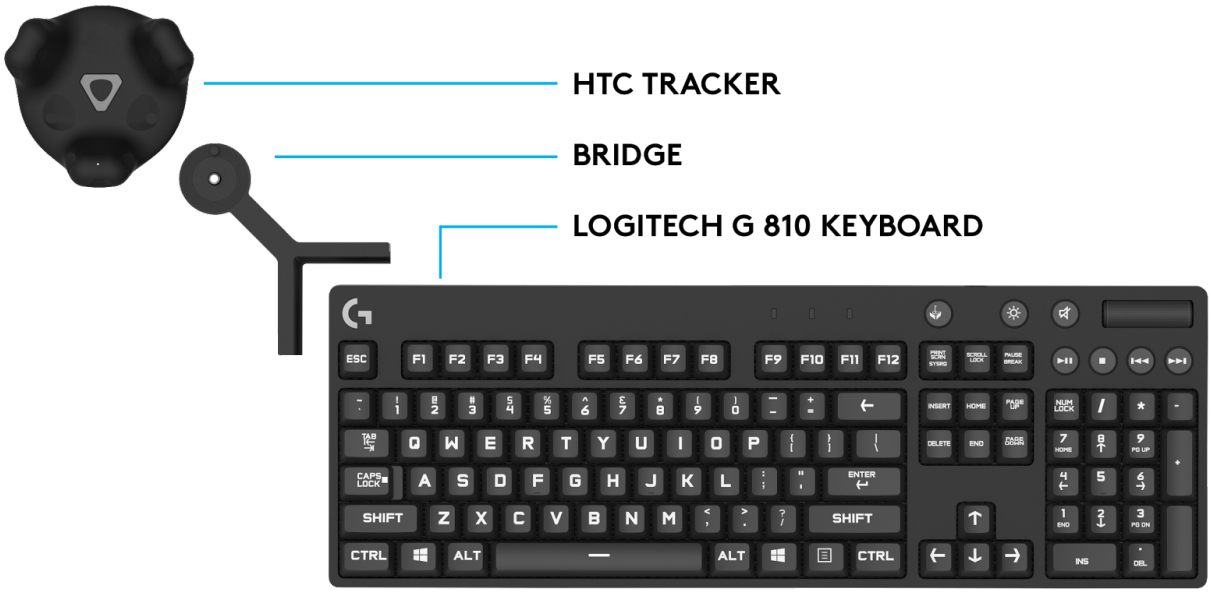
Our motivation comes from the research-backed understanding that in certain situations the user still needs a keyboard to interact with applications, particularly in productivity-driven or desktop scenarios, but also in games, social applications and content browsing.

We believe that a physical keyboard should be present, as it delivers essential tactile feedback and the universal experience that people value.

Components:

The BRIDGE SDK requires the following elements:

- Hardware
  - A Logitech G810 Keyboard (off-the-shelf)
  - A Logitech BRIDGE adapter
  - A HTC VIVE Tracker
- Software
  - BRIDGE OVERLAY Software SDK
    - The SW installer sets up the BRIDGE OVERLAY software on the user's system.
    - Includes a pairing utility to associate a specific VIVE Tracker
    - Overlays a 3D VR keyboard that appears on top of the VR environment.
    - (In progress) SDK to allow developer to control elements of the VR keyboard overlay.
    - (In progress) enables a representation of user's hands overlaid (capture from the VIVE HMD Passthrough camera) on the VR keyboard.



Setup instructions:

1. Attaching the VIVE Tracker to the Keyboard

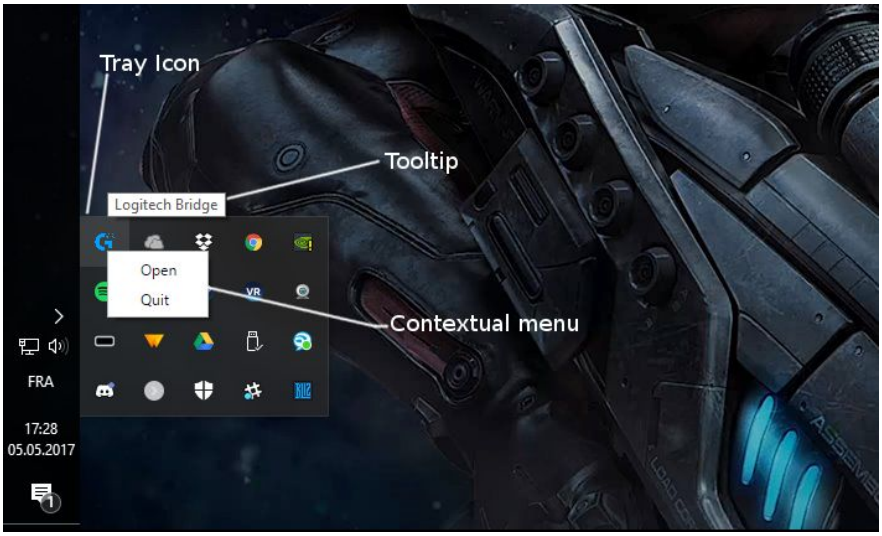
1. Ensure that the BRIDGE *Locator Pin* is aligned with the VIVE Tracker locator hole when placing the Tracker on BRIDGE.
2. Secure the VIVE Tracker to BRIDGE by tightening the BRIDGE *Mounting Screw*.
3. Attach the assembled BRIDGE & VIVE Tracker to the top left corner of the Logitech G810 keyboard. Following the leaflet contained in the BRIDGE box, first align BRIDGE to the left side of the keyboard, and then position the other leg on the top of the keyboard and push to make sure is it well secured.

2. Install the BRIDGE OVERLAY SW package

Head to our private GitHub repository: https://github.com/Logitech/logi_bridge_sdk, clone or download the full content. Follow the README.md instructions.

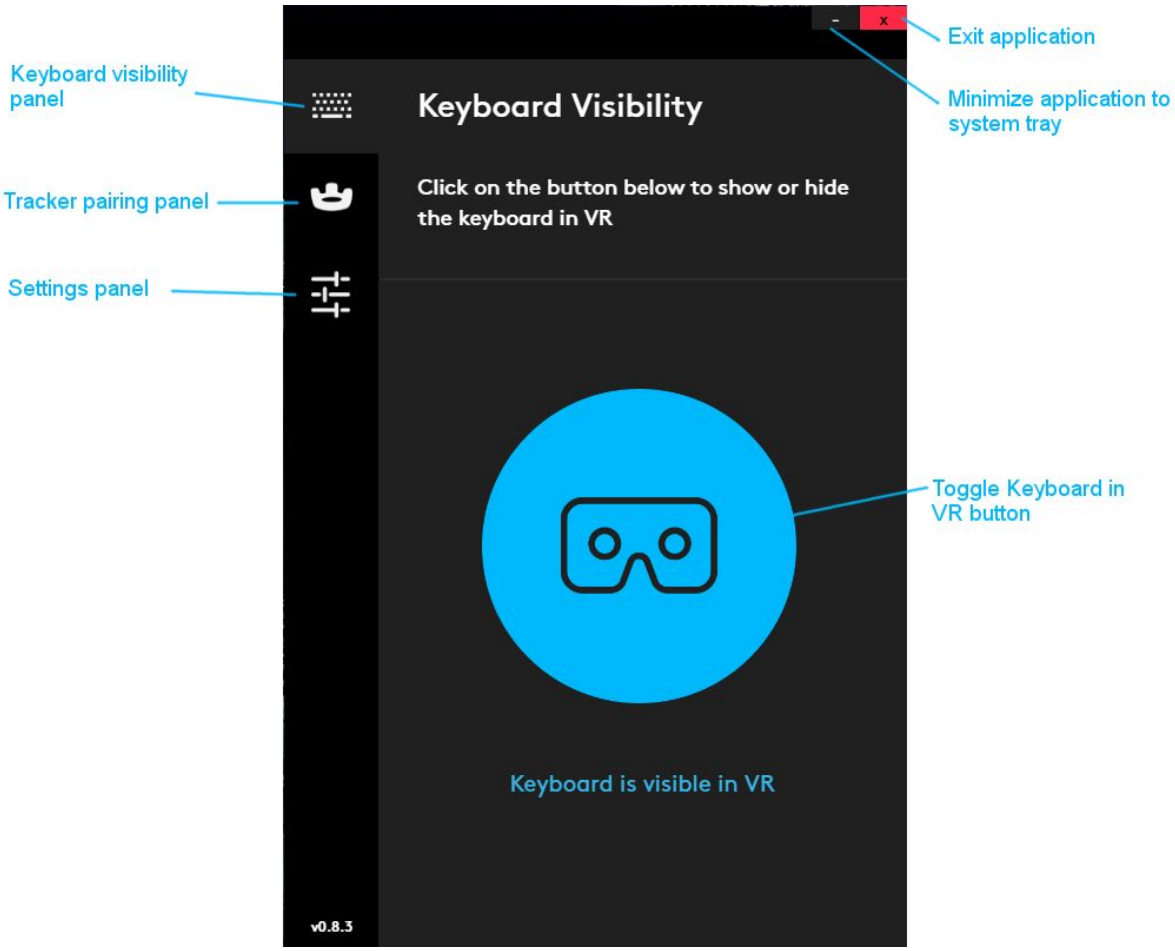
Once installed, the core Overlay functionality will run as a service and the main UI will be available in the **system tray** to be accessed whenever needed:

Logitech BRIDGE OVERLAY tray icon

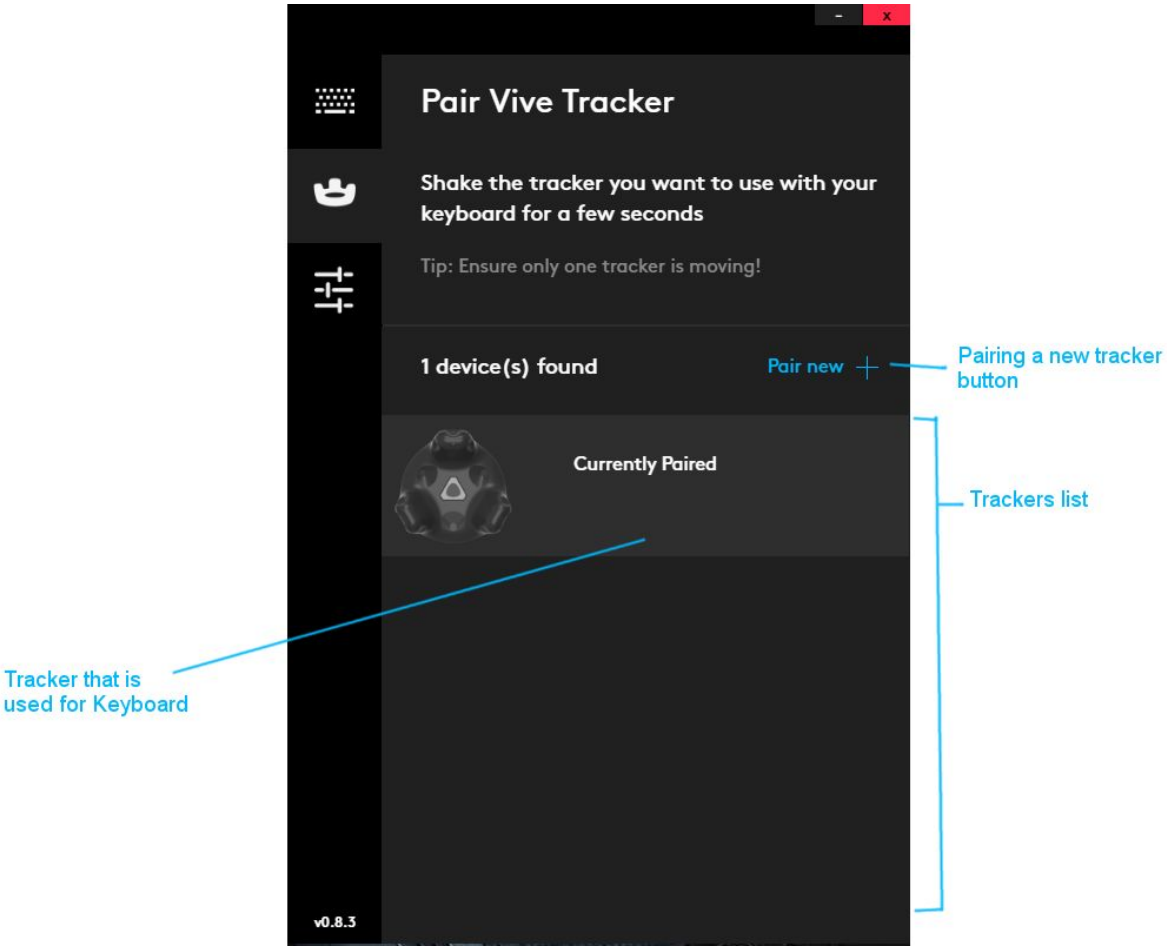


Logitech BRIDGE SDK SW that runs in system tray.

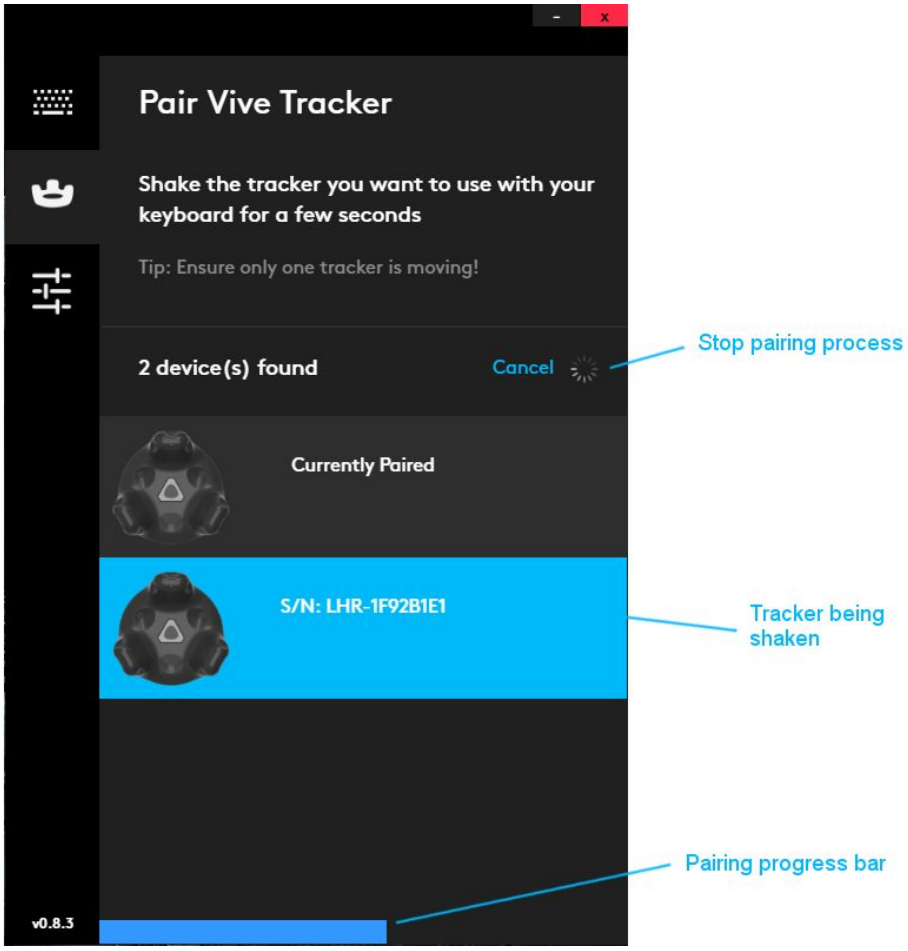
UI overview



The Keyboard visibility panel



Pairing panel with one tracker assigned to the keyboard

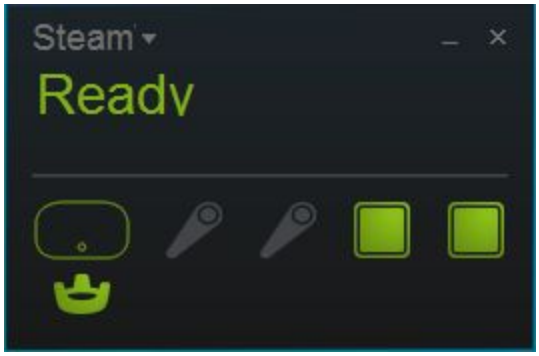


Pairing a new tracker

3. Pairing a tracker

A) in Steam VR

First, pair the VIVE Tracker as per HTC instructions (http://link.vive.com/tracker/guideline).
Make sure you switch the Tracker on in pairing mode, by long pressing the center button, indicated by the Tracker LED blinking. Use the SteamVR drop down menu ">Devices>Pair Controller" to pair a new device. Follow the steps there (even if the UI references controllers rather than Trackers). When successful, the new Tracker should appear as below in SteamVR.

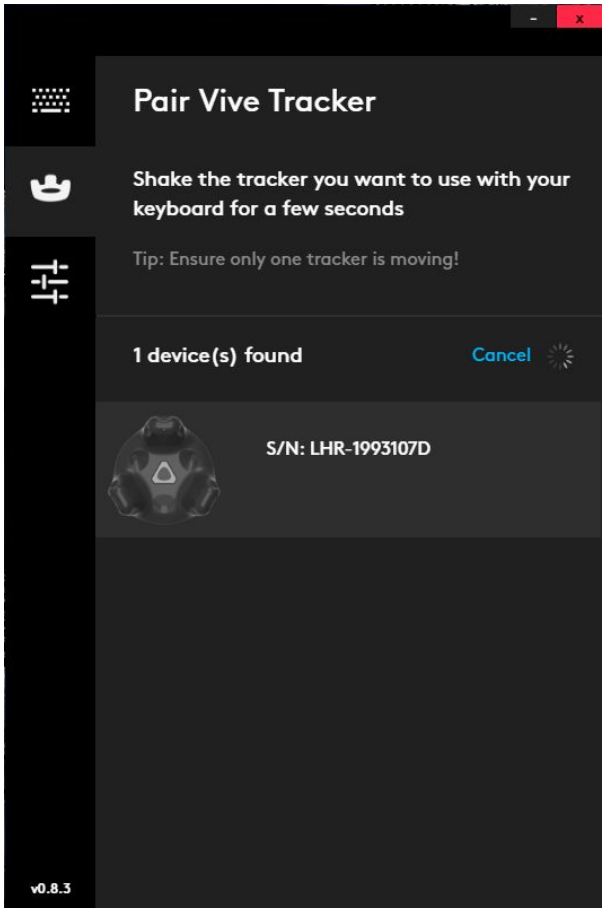


B) in Logitech BRIDGE OVERLAY UI

Launch the Logitech BRIDGE OVERLAY UI by right clicking in the system tray and selecting OPEN.

On first launch, the application will test whether a Vive system is connected or not to the computer. If no suitable Vive system is found, an error message will be prompted. The error message lets the user know specifically that they might have an issue with their Vive system and suggests to verify it is plugged in the pc and working.

If a Vive system is found, the application will launch as expected and bring the pairing panel forward . This panel displays any HTC tracker paired with SteamVR should appear in the form of a list. The next steps are described in the section "Pairing an HTC tracker".



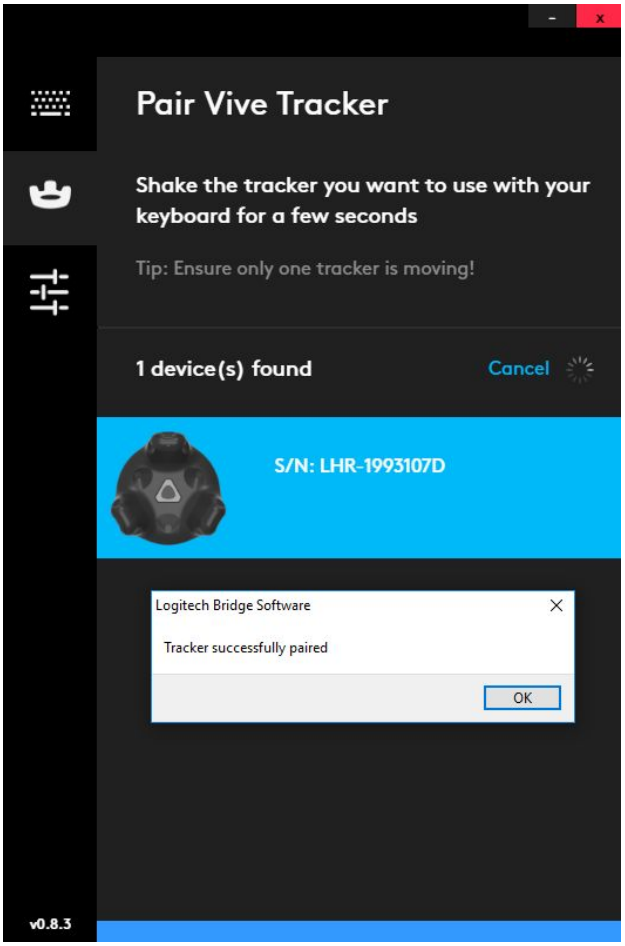
How the first time launch screen should look if a Vive system is found

Pairing wizard

Upon clicking on the Pairing menu icon (HTC tracker icon) or when launching the application for the first time, the user is presented with a screen to help them assign an HTC tracker to the keyboard.

Any currently turned on and paired with SteamVR HTC tracker will appear in the list on this screen. To pair a new tracker with the keyboard, press the “Pair new +” button. The tracker list will update and include all found trackers (not only the currently paired one). The user then has to shake for roughly 5 seconds the tracker they want to assign to the keyboard. As they shake this tracker, a progress bar will appear at the bottom of the application.

If a second tracker is moved, all progress is reset. If the user stops moving a tracker, its progress will pause and decrement overtime. If the user then resumes shaking the tracker, the progress will resume and move on. When the progress bar reaches the right side of the panel, a popup will appear to confirm the tracker has been successfully paired.

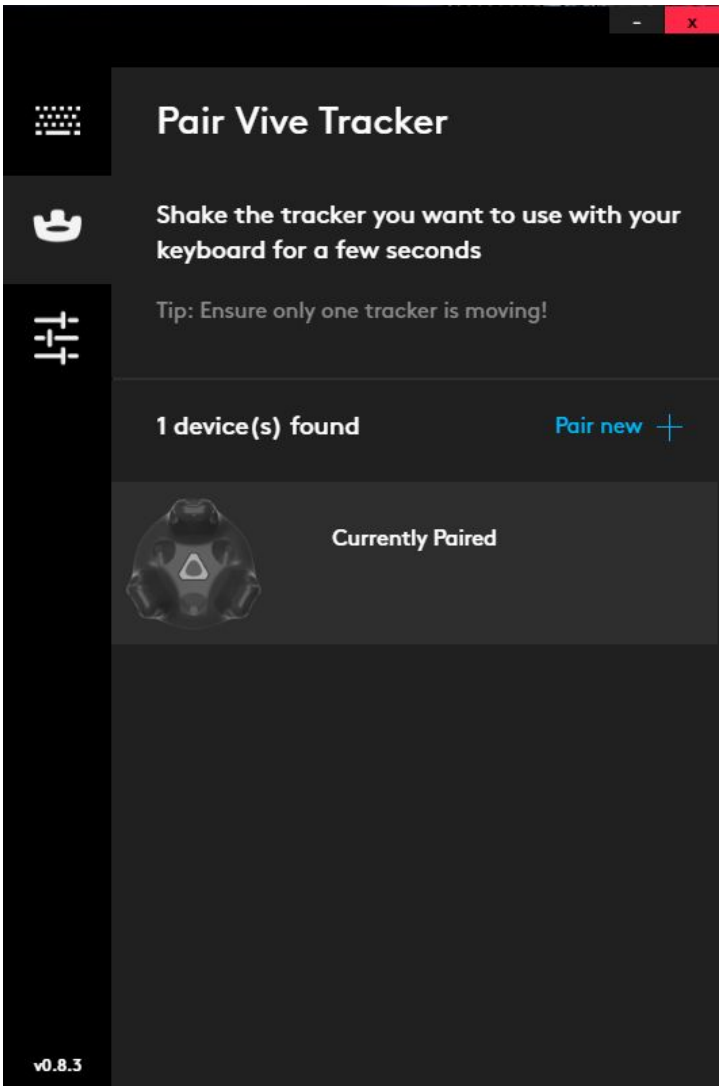


A successful pairing

Upon clicking the “OK” button on that popup, the software will bring the keyboard visibility panel and turn the visibility to ON.

Note: if a tracker is not correctly seen by the base stations, it may be drifting, hence causing an automatic pairing as it is moving. Ensure your trackers are well tracked and steady before starting the pairing process.

Going back to the pairing panel will show the tracker that is currently paired:



Second launch

If during the first launch no tracker was paired, please refer again to the section “First launch”. If during the first launch a tracker was successfully paired, the following will happen:

The keyboard visibility panel will open and turn on by default the keyboard in VR. If the user opens the pairing panel now, they will see again the list of trackers but if the one they previously paired is present, it will be tagged as “Currently paired”.

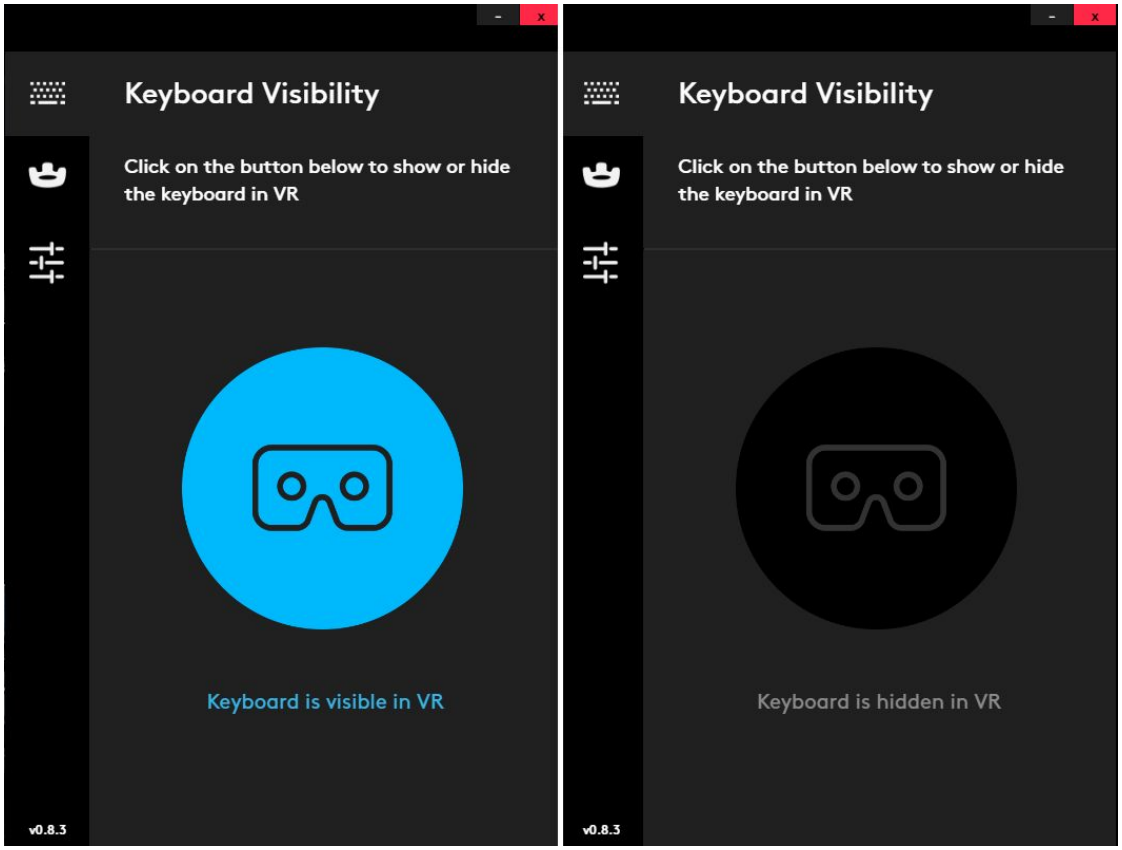
Reassigning a new tracker

If a tracker has already been assigned to the keyboard, it is possible to reassign another one instead. To do that open the pairing panel, and go through the process of section “Pairing an HTC tracker”.

The new tracker will be automatically used to position and orient the keyboard in VR once successfully paired.

Toggle the keyboard in VR

Toggling the keyboard in VR allows the user to show or hide the keyboard in the VR world. Once an HTC tracker is paired, the keyboard visibility panel allows the user to toggle the keyboard in VR. The large, round button in the center of the panel acts as a toggle button. When the button is in dark grey, it means that the keyboard is hidden. If the button is light blue, the keyboard is visible in VR.



Minimizing the application and bringing it back

When the software is in the foreground, pressing the top right red button should minimize it to the system tray. From the system tray, a single click on the Bridge software icon should bring it back to the foreground.

Double click on the system tray icon should have no effect. Using the right-click on the tray icon of the Logitech Bridge Software, the user can choose from either opening the app, or exiting it.

Functionality:

Requirements:

The BRIDGE OVERLAY SW package follows these requirements:

- Needs Steam and SteamVR installed
- Needs an HTC Vive kit and at least one HTC Tracker
- Runs on win x64 only.
- Uses Open VR api's.
- Compatible with all apps that are developed based on Steam VR (©Valve).

Overlay 3D VR Keyboard

It is the SW piece that supports the BRIDGE SDK and presents the user with an overlaid virtual representation of their keyboard in any VR application: it acts as an additional virtual screen that is placed in front of the user's HMD view.

The system will get the paired VIVE Tracker pose and render a 3D representation of a Logitech G810 keyboard, complete with animations when the keys are pressed.

Fig: 3D Rendered Logitech G810 keyboard in Steam Shell

Fig: Skin example where fonts are bigger (more readable)

Fig: Skin example on the Logitech G810

As a first step: the developer's application does not need to manage anything, the overlay appears automatically as soon as the associated Tracker (see pairing chapter) is turned on.

In a future version we foresee that the developer's application itself will be able to interface (see API chapter below) with the BRIDGE OVERLAY SW in order to control the keyboard's appearance, skins, layout and other elements.

Keyboard shortcuts

shortcut	Keys	notes
Toggle Keyboard visibility	TBD	Not yet implemented.
Go to next skin	RIGHT CTRL + RIGHT ARROW	(it cycles back at the end)
Go to previous skin	RIGHT CTRL + LEFT ARROW	(it cycles back at the end)

API (future)

The planned future package will allow some other interesting features:

- App driven ON/OFF virtual keyboard toggle
- Hands overlay transparency control
- Hands overlay color control
- Customisable virtual skinning of the keyboard
- Any feedback/requests on features are welcome!

Feedback & Bug report procedure:

We value a lot your input on:

- possible bugs
- Shortcomings
- Issues
- imcompatilities

as well as:

- enhancements ideas
- possible new features

More importantly :

- What you think of the idea
- Is it useful
- Does it fit your app scenarii

We hope this will be an ongoing discussion between Logitech and you, and for that to happen we will organise some sessions and meetings to get face to face (or CC based) discussions, whenever possible.

We also strongly suggest to use our private GitHub repository for bug reports and features requests. Follow this link https://github.com/Logitech/logi_bridge_sdk/issues and post it there. This will allow easier tracking and followup.

If you have any other generic questions or comments, please feel free to contact us on bridgesdk@logitech.com.

FAQ: [link to WIP]