Firmware States

SteamVR™ Tracking HDK

The HDK firmware has been refactored (as of 2017.12.21) to behave similar to existing commercially available products.

The biggest impact to end users is the need to explicitly turn the device on prior to SteamVR recognizing and interacting with the device. For devices configured as controllers (by default or as set in the JSON file), the user will need to press the System button to turn the device 'On.' Pressing the System button for 4 seconds will power off the device. Please note:

- Devices without batteries installed (such as HMD devices) will skip the power-off charging state and immediately power-on upon USB insertion.
- Firmware is running during the charging state to drive LED colors and monitor connection status. As such, some functionality may be visible through lighthouse_console but full device operations will not be available until the device is explicitly powered on.

An auto-off functionality has been added to the design. If the device fails to find a connection to the host while operating on battery power, the device will shut off after 30 seconds.

Device chimes have also been implemented to assist the user know when the device changes states. Chimes are played through the haptic motor. As such, the trackpad must be installed and enabled for chimes to be heard. Chimes are currently played on the following state transitions:

- Power-off → power-on
- Power-on → power-off
- Pairing Initiated

The LED behavior follows the following state chart:

LED State			Device State	Charge State	Connection State
	Off		Off	Any	Disconnected
	Orange	Steady	On or Off	Charging	Disconnected
	White	Steady	Off	Full	USB
	White	Fast blink	Identification*	Any	USB or RF
	Green	Steady	On	Any	USB or RF
	Blue	Steady	On	Any	RF Connecting
	Blue	Blinking	On	Any	RF Pairing
	Red	Slow blink	Device Error**	Any	USB or RF
	Red	Medium blink	On	Low Battery	Disconnected or RF
	Red	Fast blink	Bootloader	Any	Any

* SteamVR has sent a message to the controller to identify it to the user. This results in blinking the LED white for a few seconds and a haptic rumble

** Any device error can trigger this state, including a missing JSON file