

# UE4에서 오쿨러스 빌드하기

# TOPICS

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- What is Oculus
- Oculus SDK integration
- Oculus Basics
- Oculus Games
- Q&A

# WHAT IS OCULUS

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Crescent Bay



Gear VR

# WHAT IS OCULUS

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- 올해 말 프리오더
- 2016년 1분기 배송 시작
- 가격은 미정

# CRESCENT BAY

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- 90hz Low Persistence refresh rate
- 360도 트래킹
- 오디오 내장



# GEAR VR

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- 1440p OLED 스크린
- 60hz refresh Rate
- Samsung Galaxy Note4 and S6 지원
- Wireless

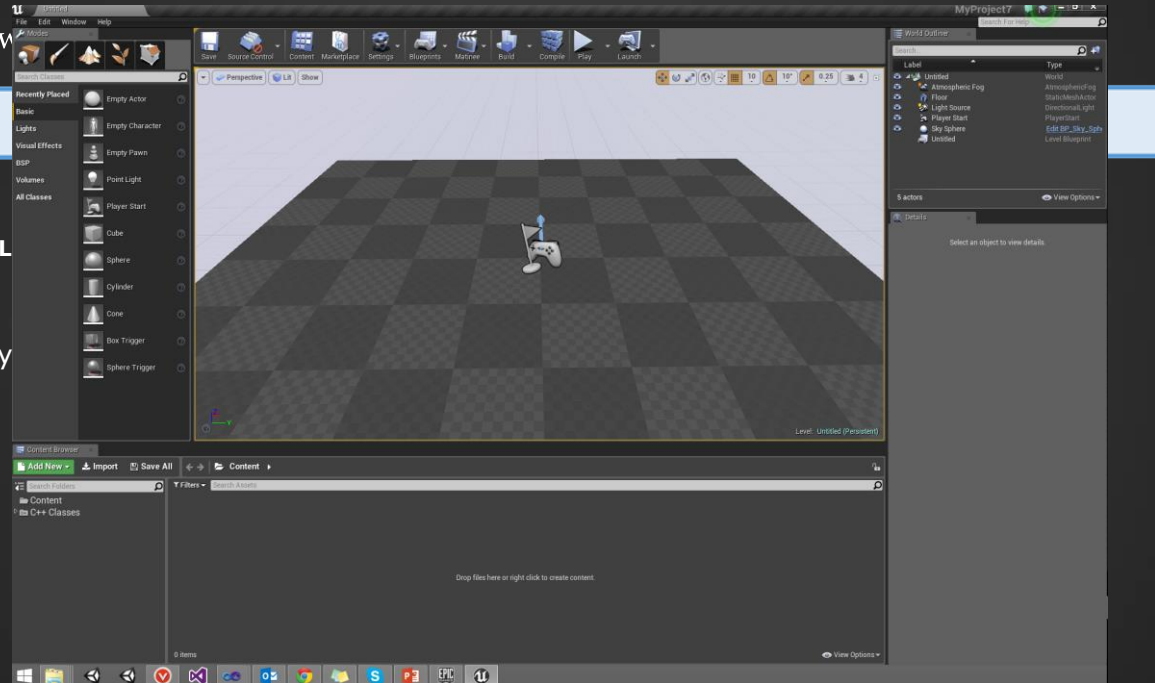


# OCULUS SDK

Where OVR Softw

SDK 0.5.x부터 DLL  
구조로 변경

wrapping lay  
library(DLL)



# Oculus SDK 세팅 스텝 (PC)

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1. oculus runtime 설치
2. Windows->Plugins->Enable Oculus Rift Plugin
3. Win64용 패키지 익스포트
4. 풀스크린 전환: Alt + Enter



# Oculus SDK 세팅 스텝 (MOBILE)

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1. Signature File 저장
  1. Download signature file on <https://developer.oculus.com/osig/>
  2. Save it to Epic Games\4.7\Engine\Build\Android\Java\assets
2. New Project(C++) 생성
3. Mobile/Tablet, Scalable 3D or 2D, No Starter Content
4. Windows->Plugins->Head Mounted Displays->Enable Gear VR Plugin
5. Edit->Project Settings->Android
6. “Configure AndroidManifest for deployment to Gear VR” 활성화
7. Android(ETC2) 패키지 익스포트

# Oculus SDK in Unreal Engine w/ C++

## IHeadMountedDisplay Class

```
27  */
28
29  class HEADMOUNTEDDISPLAY_API IHeadMountedDisplay : public IModuleInterface, public IStereoRendering
30  {
31
32  public:
33      IHeadMountedDisplay();
34
35      /**
36       * Returns true if HMD is currently connected.
37       */
38      virtual bool IsHMDConnected() = 0;
39
40      /**
41       * Whether or not switching to stereo is enabled; if it is false, then EnableStereo(true) will do nothing.
42       */
43      virtual bool IsHMDEnabled() const = 0;
44
45      /**
46       * Enables or disables switching to stereo.
47       */
48      virtual void EnableHMD(bool bEnable = true) = 0;
49
50      /**
51       * Returns the family of HMD device implemented
52       */
53      virtual EHMDDeviceType::Type GetHMDDeviceType() const = 0;
54
55      struct MonitorInfo
56      {
57          FString MonitorName;
58          size_t MonitorId;
59          int DesktopX, DesktopY;
60          int ResolutionX, ResolutionY;
61          int WindowSizeX, WindowSizeY;
62      };
63
64      MonitorInfo() : MonitorId(0)
65      {
66          DesktopX(0)
67          , DesktopY(0)
68          , ResolutionX(0)
69          , ResolutionY(0)
70          , WindowSizeX(0)
71          , WindowSizeY(0)
72      }
73  }
```

# Oculus SDK in Unreal Engine w/ Blueprint

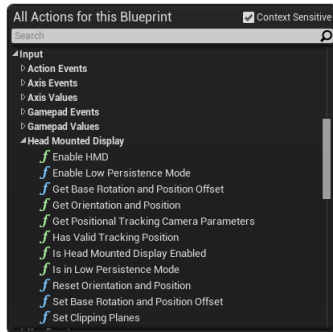
- [https://wiki.unrealengine.com/Oculus\\_Rift\\_Blueprint](https://wiki.unrealengine.com/Oculus_Rift_Blueprint)

## Oculus Rift Blueprint

### Overview

Blueprint makes several functions available for use with the [Oculus Rift](#) or other head mounted display. Find them under **Input > Head Mounted Display**.

Reference: `UnrealEngine\Engine\Source\Runtime\Engine\Classes\Kismet\HeadMountedDisplayFunctionLibrary.h`  
(Current as of version 4.7)



### Methods

- [Enable HMD](#)

# Oculus basics: performance

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- On CrescentBay, must always hit 90 FPS
- On Gear VR, must always hit 60 FPS
- 프레임 레이트는 그래픽 퀄리티등 다른 어떤 게임요소보다 중요!

# Oculus basic: run without gear vr

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1. device Settings -> Application manager -> Gear VR Service **선택**
2. "Manage storage" **선택**
3. "VR Service Version" 여섯번 이상 클릭
4. 설치된 앱들을 스캔하며, 그 중 만약 시그니처 파일을 가진 앱이 있으면  
개발자 인증이 됨

# Keyword in Oculus

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Comfortable

Immersive

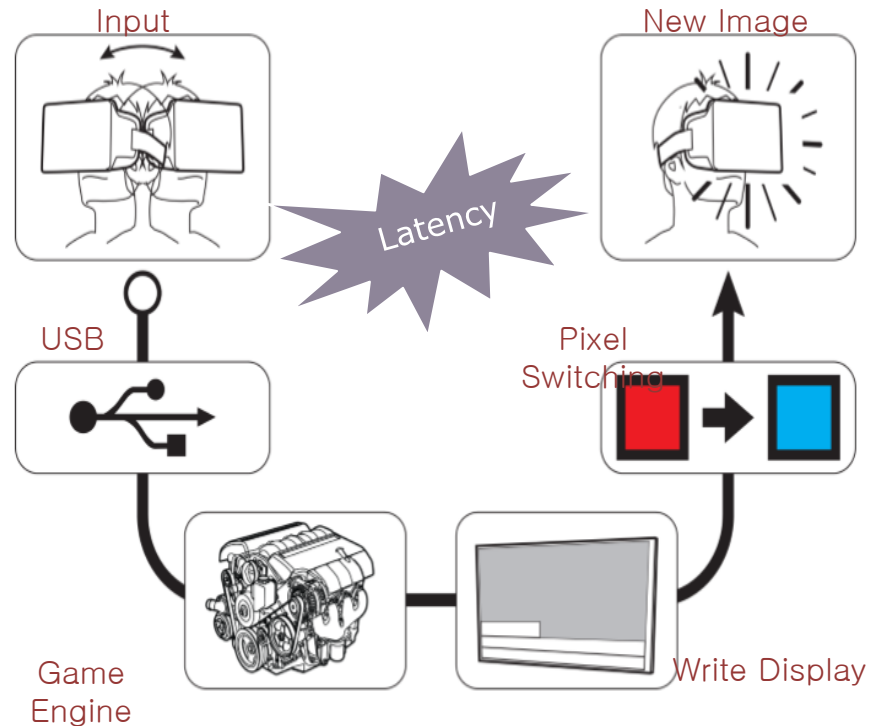
# Oculus basics: Input Options

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- **Mouse + keyboard**
  - 유저들이 볼 수 없지만, 다양한 인풋 가능
- **Gamepads**
  - 직관적인 컨트롤이 가능하지만, 제한된 인풋
- **Touchpad**
  - 스와이프(Swipe), 탭(tap gestures)
- **Motion-sensing “wand” controllers**
  - Razer Hydra, WiiMote, PS Move
- **Body-motion cameras**
  - Leap, Kinect, SoftKinetic

# Oculus basics: latency

- Motion-to-photon delay
- Multiple stages
  - Motion
  - Sensor delay
  - Processing & fusion
  - Rendering
  - Scanout
  - Transmission
  - Pixel change time
  - Pixel persistence



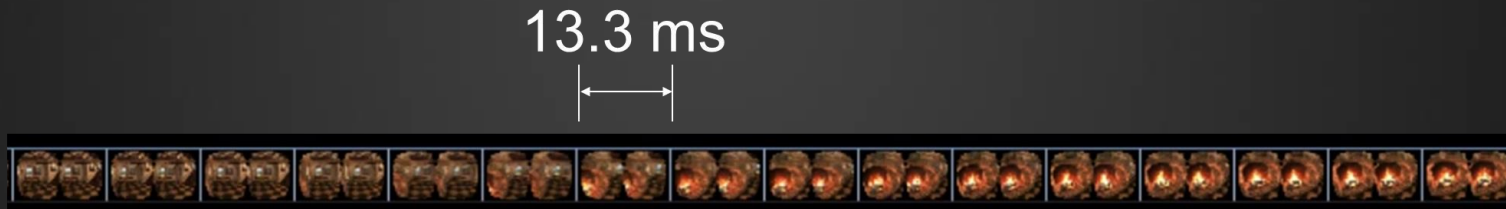


# Oculus basics: timewarp

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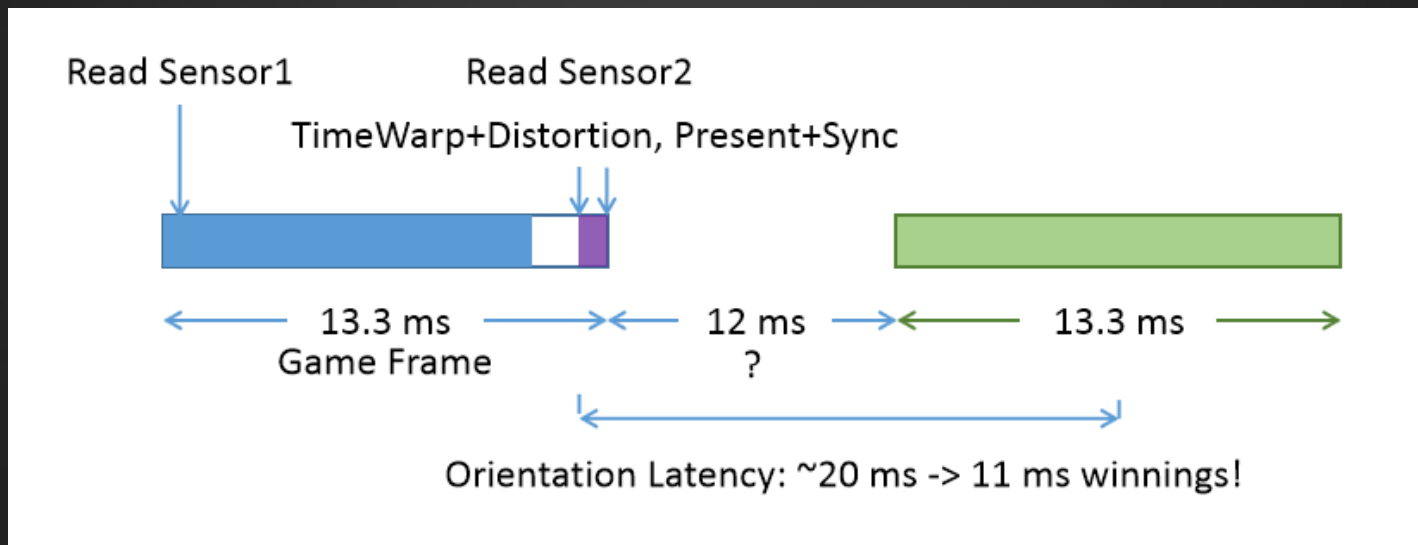
Any other way to apply sensor before the end of the frame?

TimeWarp – Projected rendering - Pioneered by John



**75 FPS**

# Oculus basics: timewarp



# Oculus Games

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# Oculus Games



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Q & A