

Superposition Benchmark 1.1

User Manual



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Overview

A lone professor performs dangerous experiments in an abandoned classroom, day in and day out. Obsessed with inventions and discoveries beyond the wildest dreams, he strives to prove his ideas. Once you come to this place in the early morning, you would not meet him there. The eerie thing is a loud bang from the laboratory heard a few moments ago. What was that? You have the only chance to cast some light upon this incident by going deeply into the matter of quantum theory: thorough visual inspection of professor's records and instruments will help to lift the veil on the mystery.

Key Features:

- ◆ Top-notch visuals powered by [UNIGINE 2 Engine](#)
- ◆ Extreme hardware stability testing
- ◆ GPU temperature and clock monitoring
- ◆ Unique **SSRTGI** (Screen-Space Ray-Traced Global Illumination) dynamic lighting technology
- ◆ VR experience: Oculus Rift and SteamVR-compatible HMDs (HTC Vive/Vive Pro, Windows Mixed Reality and others)
- ◆ Free exploration mode with mini-games
- ◆ Over 900 interactive objects
- ◆ Global leaderboards integration

System Requirements

Operating System:

Windows: 7 SP1, 8, 8.1, 10 (**64-bit only**)

Linux: glibc 2.15+ distributions (**64-bit only**)

Disk Space:

At least 5 GB free space on disk

RAM:

4 GB

GPU:

AMD Radeon HD 5xxx and higher

Intel HD 5xxx and higher

NVIDIA GeForce GTX 6xx and higher

VR: GTX 970+ / AMD R9 290+

VRAM:

Minimum: 1 GB, Recommended: 4+ GB

Virtual Reality Headset:

Oculus Rift

SteamVR-compatible HMD (HTC Vive/Vive Pro, Windows Mixed Reality and others)

Input Devices:

Keyboard + Mouse

Xbox controller (360 / ONE)

Steam Controller (Xbox Emulation mode)

Oculus Touch

HTC Vive joysticks

Version History

New features and fixes for each version of the Superposition benchmark.

Version 1.1. - April 2019

- **VR mode is now available for the Basic edition;**
- **VR mode is now available under Linux platform via SteamVR;**
- **Improved hardware detection algorithms (CPU / GPU);**
- **Major hardware database update;**
- Updated versions of Oculus and OpenVR libraries as of March 3, 2019;
- Added HTC Vive Pro preset for VR Ready mode;
- Maximum rendering resolution increased up to 16384 x 16384;
- Automation scripts (*Pro* edition only):
 - added VR Ready mode;
 - added 4 new scripts;
 - an entry for each successful benchmark execution is now added to the event log;
 - paths containing spaces are now processed correctly;
- Fixed *F2* and *F5* hotkeys in VR mode;
- Fixed bug with 3440x1440 resolution, it is now set correctly when selected in a drop-down box in the Launcher;
- Fixed bug related to license evaluation: profiles containing non-latin symbols are now processed correctly;
- Fixed bug related to displaying a splash with 22:9 aspect ratio;
- Fixed crash with throwing darts.

Version 1.0. - April 2017

First release version.

Editions

Superposition benchmark is available in three editions:

Basic (Free) - intended for **gamers and VR users**, offering basic performance tests, VR-ready test, interactive VR mode, no option to submit your scores to the global leaderboards.

Advanced (Paid) - intended for **overclockers and VR users**, offering basic performance tests, VR-ready test, stress test (specific time interval), interactive VR mode, publishing results to the global leaderboards, only for personal usage

Pro (Paid) - intended for **commercial companies, assembly/repair shops and hardware manufacturers**, offering basic performance tests, VR-ready test, stress test (specific time interval), interactive VR mode, VR-ready test, publishing results to the global leaderboards, standalone command line tool for automation, commercial use

All the differences between the editions are given in the table below.

	Basic	Advanced	Pro
Benchmarking			
Single run	YES	YES	YES
Settings	YES	YES	YES
GPU monitoring	YES	YES	YES
VR ready?	YES	YES	YES
History		YES	YES
Leaderboards		YES	YES
Game			
VR mode	YES	YES	YES
Free interactive mode	YES	YES	YES
Automation			
Stress		YES	YES
CLI automation			YES
Reports			YES
Development			
Fixed frame rendering			YES
Per frame stats report			YES
Service			
Technical support			YES
Commercial use			YES

Installation

Windows

Double click on Unigine_Superposition-1.1.exe and follow the installation steps.

Linux

After downloading the Unigine_Superposition-1.1.run:

1. Set the executable flag to the Unigine_Superposition-1.1.run file:

```
username@pc:~$ chmod +x /paths/to/the/Unigine_Superposition-1.1.run
```

2. Execute the file to unpack the contents (will be unpacked to the same dir where Unigine_Superposition-1.1.run is located):

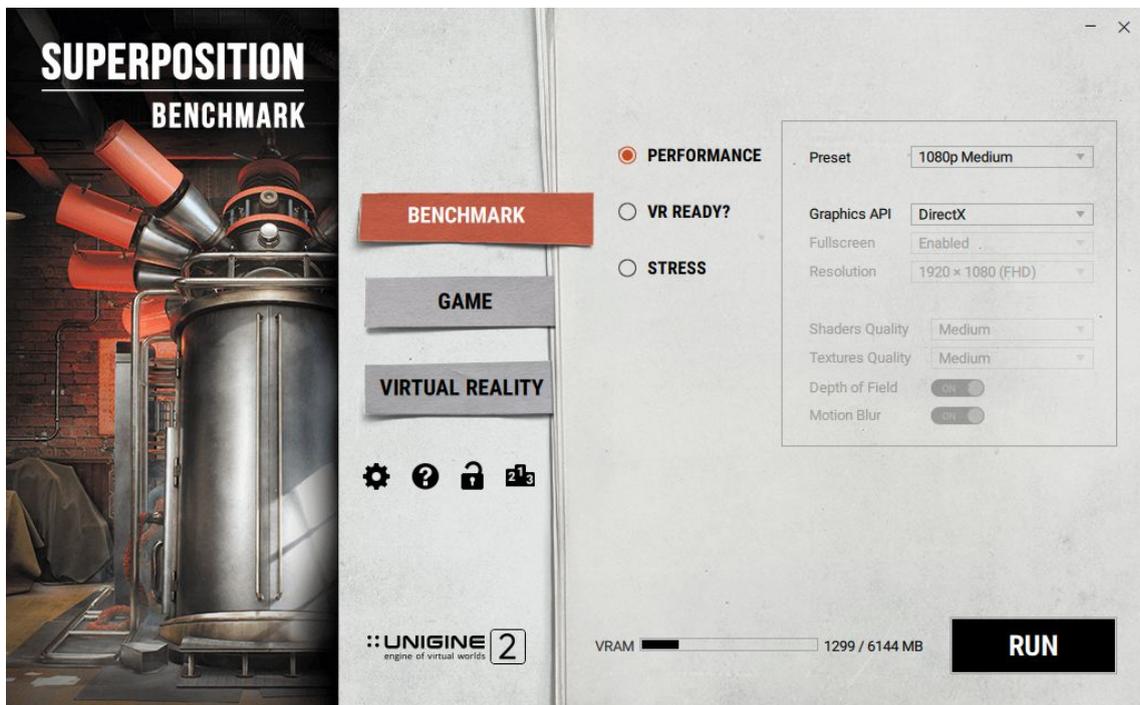
```
username@pc:~$ /path/to/the/Unigine_Superposition-1.1.run
```

3. Run the launcher:

```
username@pc:~$ /path/to/the/Unigine_Superposition-1.1/Superposition
```

Launcher

Launcher offers an interface to control the parameters (select mode, choose presets, and change settings) required to run Superposition as well as to manage your results.



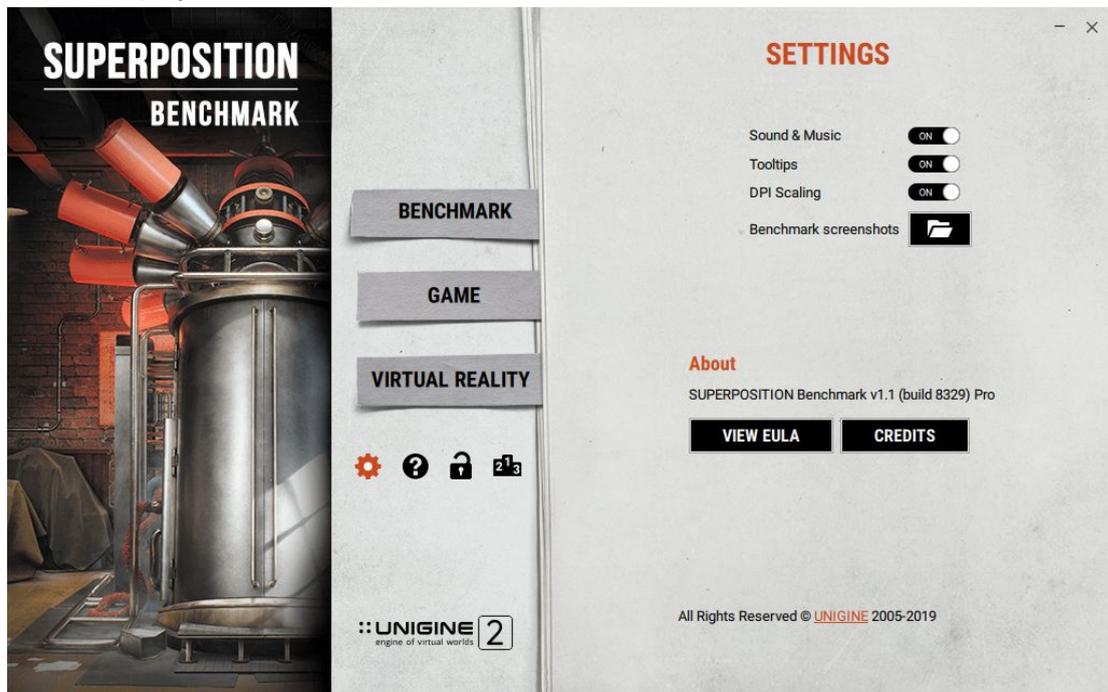
Here is a quick overview of Superposition Launcher interface.

Available modes (**Benchmark**, **Game**, and **Virtual Reality**) are represented as bookmarks: you may select one of them by clicking on a corresponding bookmark. For each of the modes, you can choose a desired preset or specify your own settings after choosing the **Custom** preset.

Settings

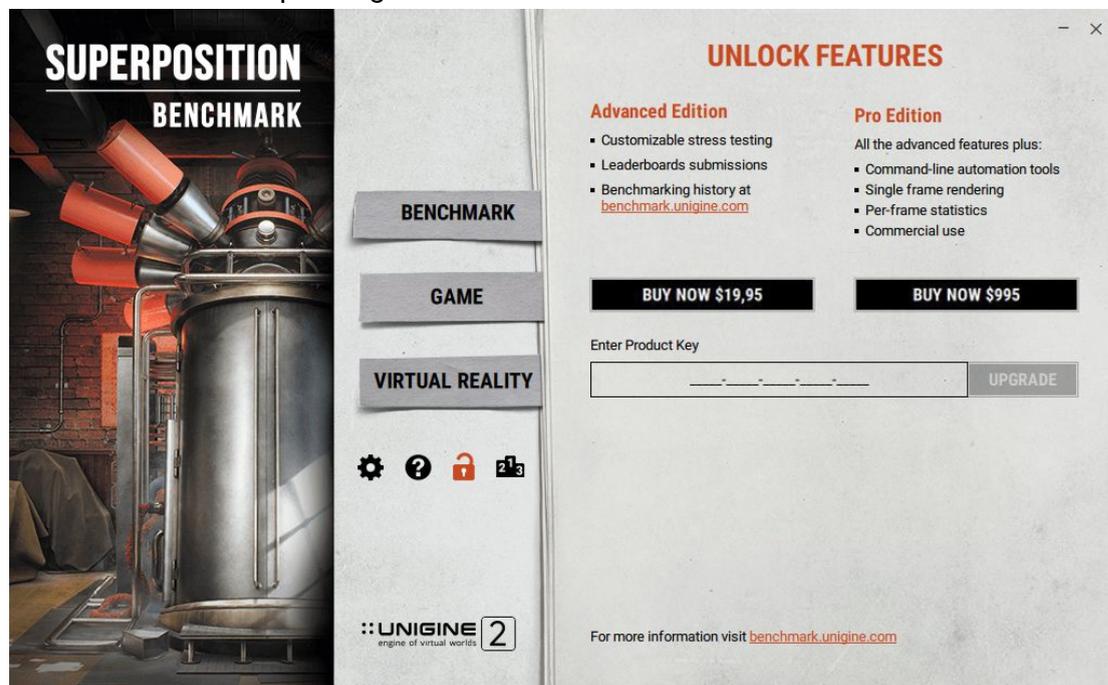
This page can be accessed by clicking on the  icon and contains the following elements:

- ◆ **Sound & music** – Turns sounds and music on and off.
- ◆ **Tooltips** – Turns in-app tooltips on and off.
- ◆ **DPI Scaling** – Turns Launcher window and fonts scaling on and off. (If Launcher window or fonts are displayed incorrectly, turn this option off and restart Launcher. Windows requires administrator rights to change this option.)
- ◆ **Benchmark screenshots** – Opens the screenshots folder.
- ◆ **VIEW EULA** – Displays the end-user license agreement.
- ◆ **CREDITS** – Displays the credits.



Unlock Features

This page can be accessed by clicking on the  icon and makes it possible to upgrade Superposition benchmark. You can choose between the **Advanced** and **Pro** editions, or if you already have a **Product Key** you can enter it in the corresponding field and click **UPGRADE**.



Benchmark Mode

This mode benchmarks the system by putting the GPU under a stress workload to determine the system's reliability and performance in extreme conditions.

Superposition provides consistently accurate stress-testing results making it possible to estimate actual game performance of your hardware. There are three test types available: **Performance**, **VR Ready**, and **Stress**.

Scoring and Leaderboards

Superposition tests include different presets, each designed for a specific type of hardware. When testing your hardware, make sure you use the most appropriate preset for its capabilities. Each test and preset gives its own score, which can be used to compare similar devices or systems. There is no overall score. Scores for different tests and presets are not comparable.

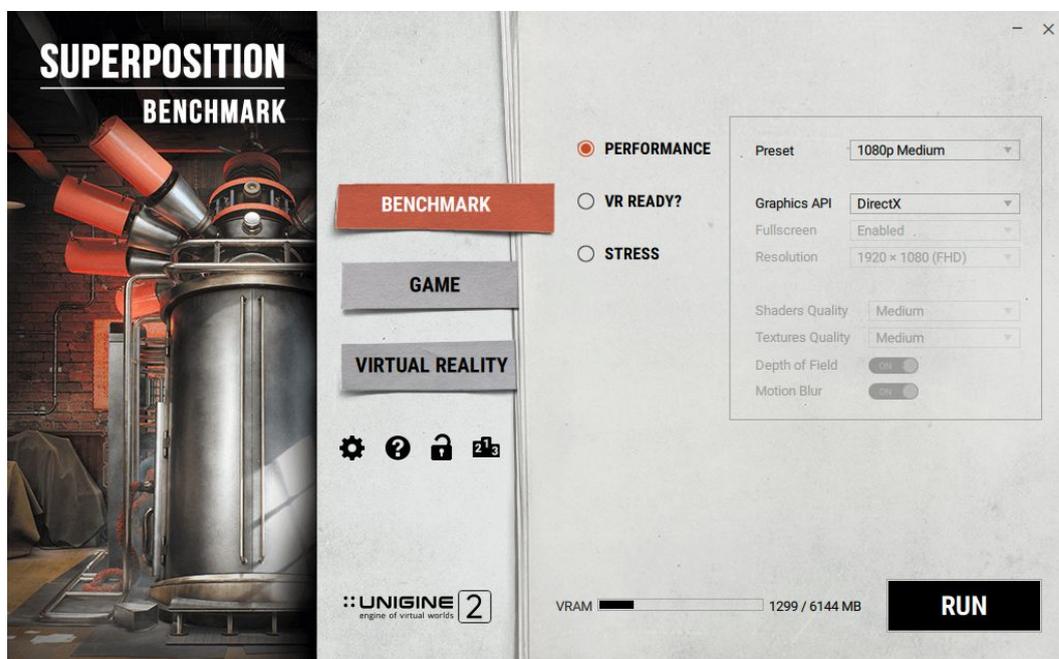
UNIGINE has its own Global Leaderboards at <https://benchmark.unigine.com/leaderboards/>. You can share your performance test results by submitting them to the leaderboards (**available for Advanced and Pro versions only**) and compare various hardware configurations. There are two ways you can submit your results to the leaderboards:

- ◆ By clicking **PUBLISH** on the **Results** tab after passing the **Performance Test**.
- ◆ By clicking **SAVE** on the same tab, saving the *.score-file, and uploading it to your profile at <https://benchmark.unigine.com> later.

VR-ready test score is limited to 10,000 and is used only to determine your hardware's capability to run VR applications with the selected quality preset and is not submitted to the leaderboards.

Performance Test

Performance test determines actual game performance of your hardware for a selected preset.



To launch the performance test, select **PERFORMANCE** item on the **Benchmark** tab and set the following parameters:

- ◆ **Preset** – Quality preset:
 - ▶ 720p Low – Entry level or legacy hardware.
 - ▶ 1080p Medium – Entry level gaming PCs with discrete GPUs / laptops with entry level mobile GPUs.
 - ▶ 1080p High – Mid-range gaming PCs / laptops with high-end GPUs.
 - ▶ 1080p Extreme, 4K Optimized – High-end gaming PCs.
 - ▶ 8K Optimized – Future configurations (2017).
 - ▶ Custom (**Results cannot be published on the leaderboards**).
- ◆ **Graphics API** – API to be used (DirectX or OpenGL).
- ◆ **Fullscreen** – Fullscreen mode. **Available for Custom preset only.**
- ◆ **Resolution** – Screen resolution. **Available for Custom preset only.**
- ◆ **Textures Quality** – Quality of textures (Low, Medium, High). **Available for Custom preset only.**
- ◆ **Shaders Quality** – Quality of shaders (Low, Medium, High). **Available for Custom preset only.**
- ◆ **Depth of Field** – Enable/disable DoF effect. **Available for Custom preset only.**
- ◆ **Motion Blur** – Enable/disable motion blur effect. **Available for Custom preset only.**

After setting up all parameters, click **RUN**.

Results

Upon completion of the test, the results and total score for your current settings and hardware configuration are displayed on the **Results** tab.



The following buttons are available on the tab:

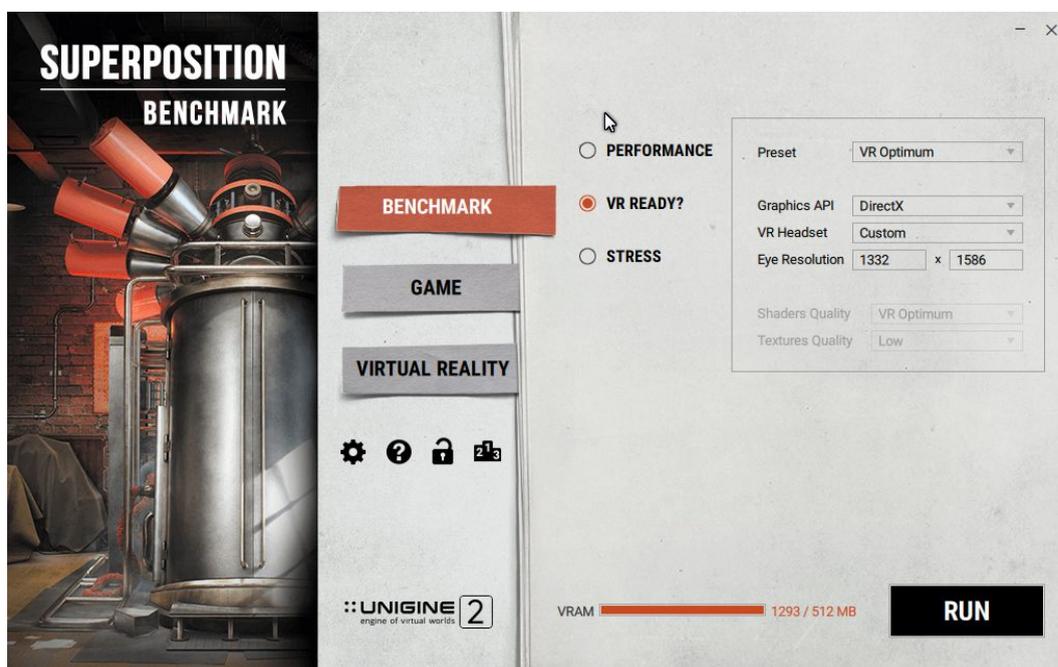
- ◆ **📷** – Takes a screenshot with your results and puts it to the screenshots folder.
- ◆ **SAVE** – Saves your results to a *.score file, which can be uploaded to your profile later.

Available in Advanced and Pro versions:

- ◆ **PUBLISH** – Sends your results to the global leaderboard at <https://benchmark.unigine.com/leaderboards/>

VR Ready Test

VR ready test determines whether your hardware is capable of running VR applications. A VR headset is not required to launch this test.



To launch the VR ready test, select **VR READY?** item on the **Benchmark** tab and set the following parameters:

- ◆ **Preset** – Quality preset:
 - ▶ VR Minimum – Entry level VR hardware.
 - ▶ VR Optimum – Mid-range gaming PCs / laptops with high-end GPUs.
 - ▶ VR Maximum – High-end gaming PCs.
 - ▶ VR Future – Future configurations (2017).
 - ▶ Custom.
- ◆ **Graphics API** – API to be used (DirectX or OpenGL).
- ◆ **VR Headset** – Headset to be used (Oculus Rift, HTC Vive / Vive Pro, or Custom).
- ◆ **Eye Resolution** – Eye resolution.
- ◆ **Textures Quality** – Quality of textures (Low, Medium, High). *Available for Custom preset only.*
- ◆ **Shaders Quality** – Quality of shaders (Low, Medium, High). *Available for Custom preset only.*

After setting up all parameters, click **RUN**.

Results

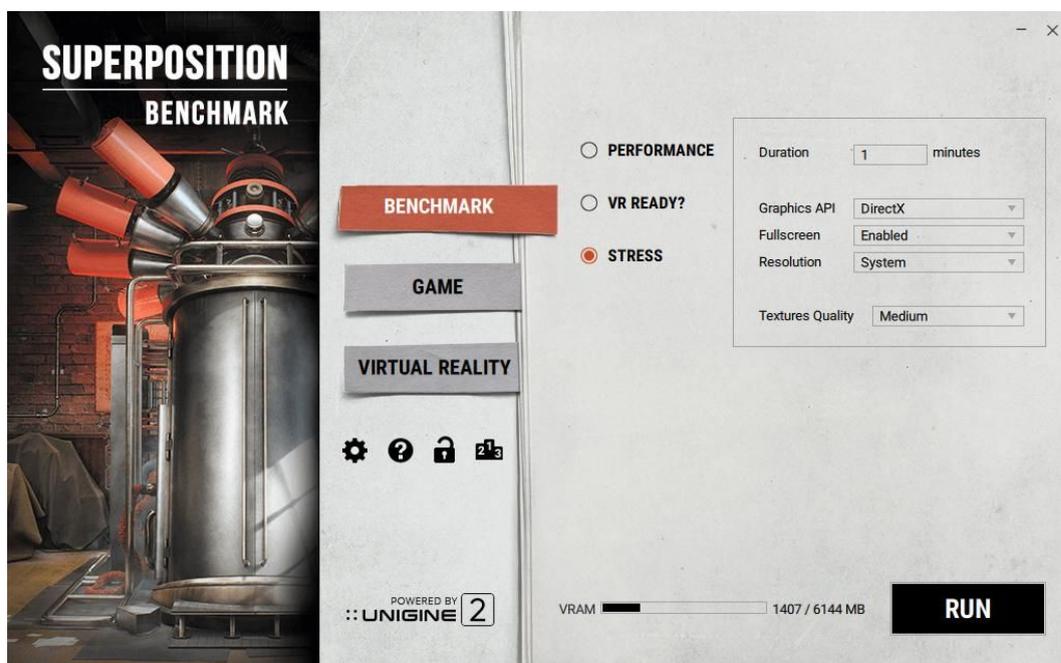
Upon completion of the test, the results are displayed on the **Results** tab. You will see the total score of your hardware and position on the VR Ready scale indicating its capability to run VR applications with the selected quality preset.



You can take a screenshot of your results using the 📷 button. It will be saved to the screenshots folder.

Stress Test *[Advanced and Pro versions only]*

Stress testing puts your hardware under a stress workload for an extended period of time to determine reliability and performance in extreme conditions. It can also identify faulty hardware or a need for better cooling. The best time to run the stress test is after buying or building a new PC, upgrading your graphics card, or overclocking your GPU.



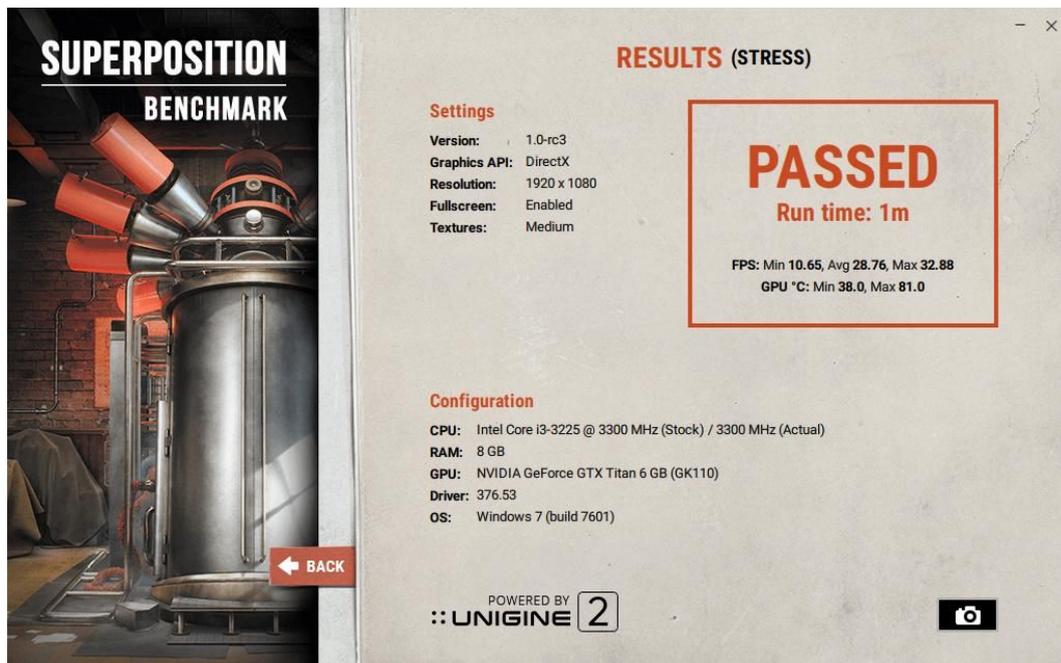
To launch the stress test, select the **STRESS** item on the **Benchmark** tab and set the following parameters:

- ◆ **Duration** – Test duration, in minutes.
- ◆ **Graphics API** – API to be used (DirectX or OpenGL).
- ◆ **Fullscreen** – Fullscreen mode.
- ◆ **Resolution** – Screen resolution.
- ◆ **Textures quality** – Quality of textures (Low, Medium, High).

After setting up all parameters, click **RUN**.

Results

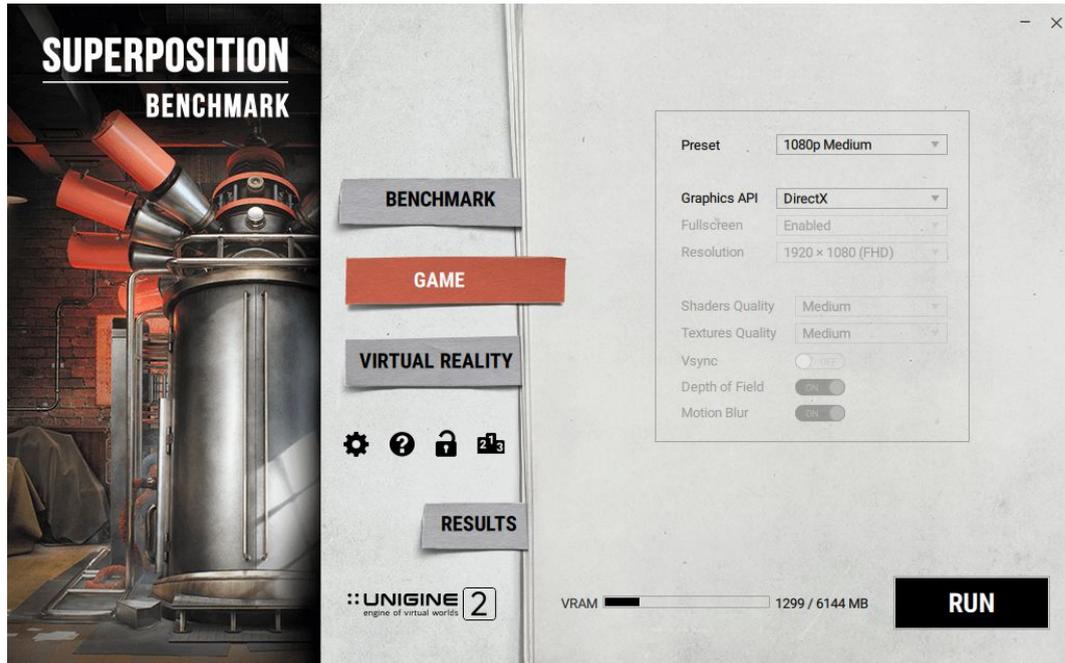
Upon successful completion of the stress test, the results are displayed on the **Results** tab. You will see the total test duration time, GPU characteristics, and the mark that the test was passed.



You can take a screenshot of your results using the  button. It will be saved to the screenshots folder.

Game Mode

If you want to explore the location yourself, look at every corner, try our interactive features, and solve the mystery of the physicist, then select this mode.



To launch Superposition in the **Game** mode, do the following:

1. Select the **GAME** bookmark.
2. Select the desired preset (see **Performance Test** section for the list of presets) or choose your own settings by selecting **Custom**.
3. Select the graphics API to be used (DirectX or OpenGL).
4. Click **RUN**.

Game Mode Features

Game mode offers the following features:

- ◆ More than 900 interactive elements
- ◆ Physical interaction between all objects
- ◆ Tweakable day-night cycle
- ◆ Gravity control
- ◆ Adjustable timescale
- ◆ Adjustable room lighting
- ◆ Switching between game and cinematic modes

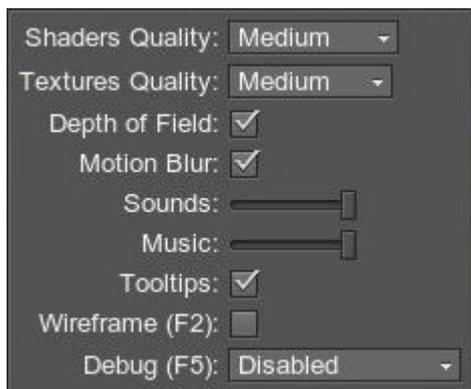
In-App UI

General Settings

Three control buttons are located in the top left corner, their names are fairly self-explanatory.



By clicking on the **Settings** button, the following panel is displayed:



Shaders Quality: Switch between Low / Medium / High / Extreme / 4K Optimized / 8K Optimized presets.

Textures Quality: Switch between textures resolution.

Depth of Field: Enable/Disable the DoF effect.

Motion Blur: Enable/Disable the Motion Blur effect

Sounds/Music: Level sliders.

Tooltips: Enable/Disable in-app tooltips.

Wireframe (F2): Enable/Disable triangles visualization.

Debug (F5): Show one of the available rendering buffers in the fullscreen mode.

Current Frame Statistics and GPU Parameters

Current statistics are displayed in the top right corner, so you can monitor parameters of your GPU and check out the following frame parameters:

- ◆ Triangles count
- ◆ Light sources count
- ◆ Number of unique materials
- ◆ Number of unique surfaces



Controls Help

In the bottom right corner, you will find the list of controls available for the current mode:

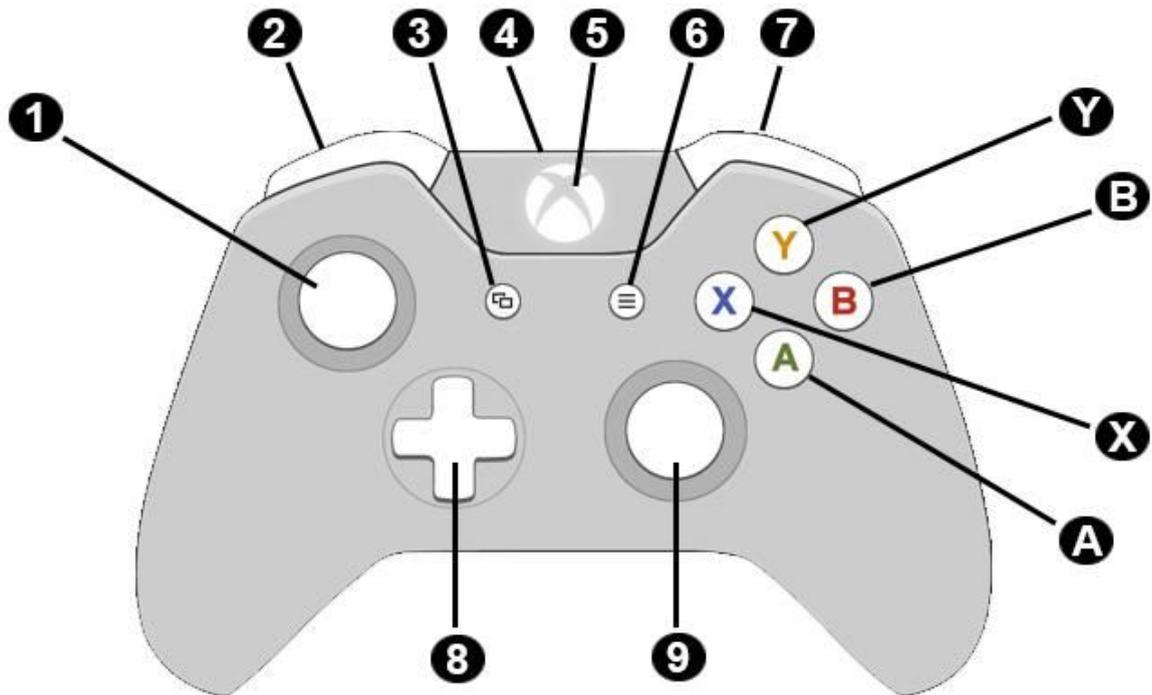
Cinematic Mode	Game Mode

Controls Mapping

Keyboard + Mouse

Game Mode	
F8	Reset scene
W, A, S, D	Movement
Shift	Run
Ctrl	Crouch
Space	Jump
Left Mouse Button	Use object (grab / release)
Right Mouse Button	Zoom
Cinematic Mode	
Space	Pause
Enter	Next shot
Backspace	Previous shot
Additional Controls	
Esc	Release mouse
F2	Show wireframe
F5	Show debug
F4	Toggle mode (Game / Cinematic)
F12	Make a screenshot

XBox Joystick



Left Stick (1)	Rotate: movement Pressed: Run
Right Stick (10)	Rotate: Change viewing direction
Left Bumper (2)	Zoom
Right Bumper (7)	Use object (grab / release)
Directional Pad (8)	Change viewing direction
Button A (A)	Crouch

Virtual Reality Mode

Want to become a part of the story, to feel the atmosphere like it is all ... for real? This mode offers you to enjoy all the features of the **Game** mode at a totally new level of immersion.

Virtual Reality mode works under Windows and Linux OS.

Windows Setup

VR Hardware Requirements

SteamVR-compatible HMD(Windows only):

Latest SteamVR application: <https://store.steampowered.com/app/250820/SteamVR/>

HMD Mode: Direct

Room scale is recommended

Oculus Rift:

CV1 device

Latest Oculus Runtime: <https://www3.oculus.com/en-us/setup/>

Enable the **Unknown Sources** checkbox in *Oculus Home* → *Settings* → *General*

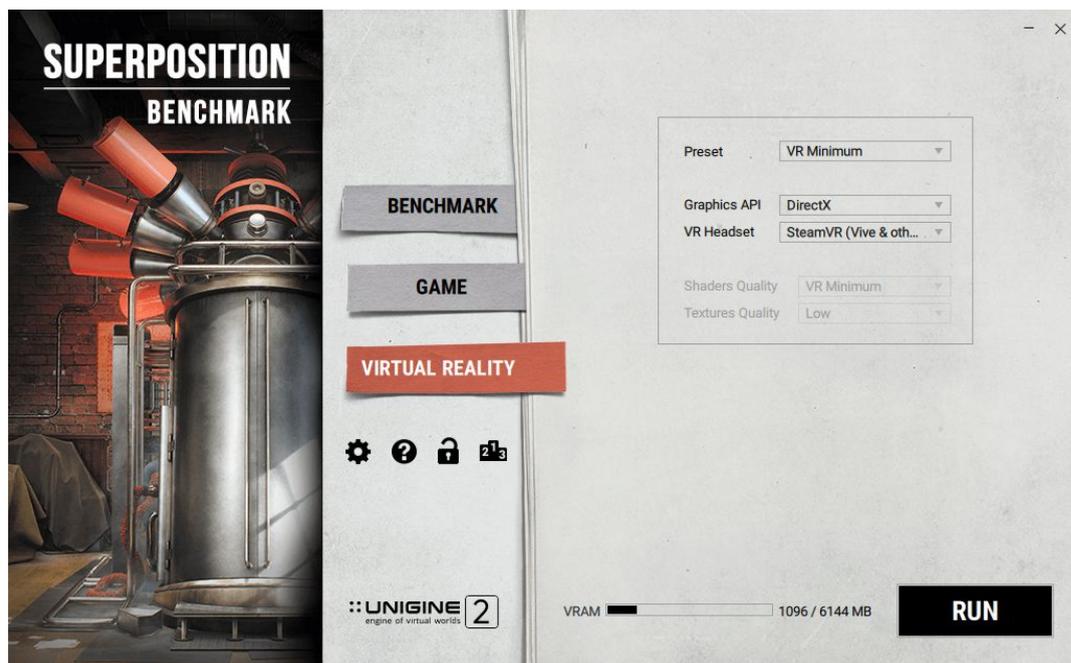
Linux Setup

SteamVR-compatible HMD:

Follow the instructions on setting up SteamVR for Linux:

<https://github.com/ValveSoftware/SteamVR-for-Linux>

Room scale is recommended

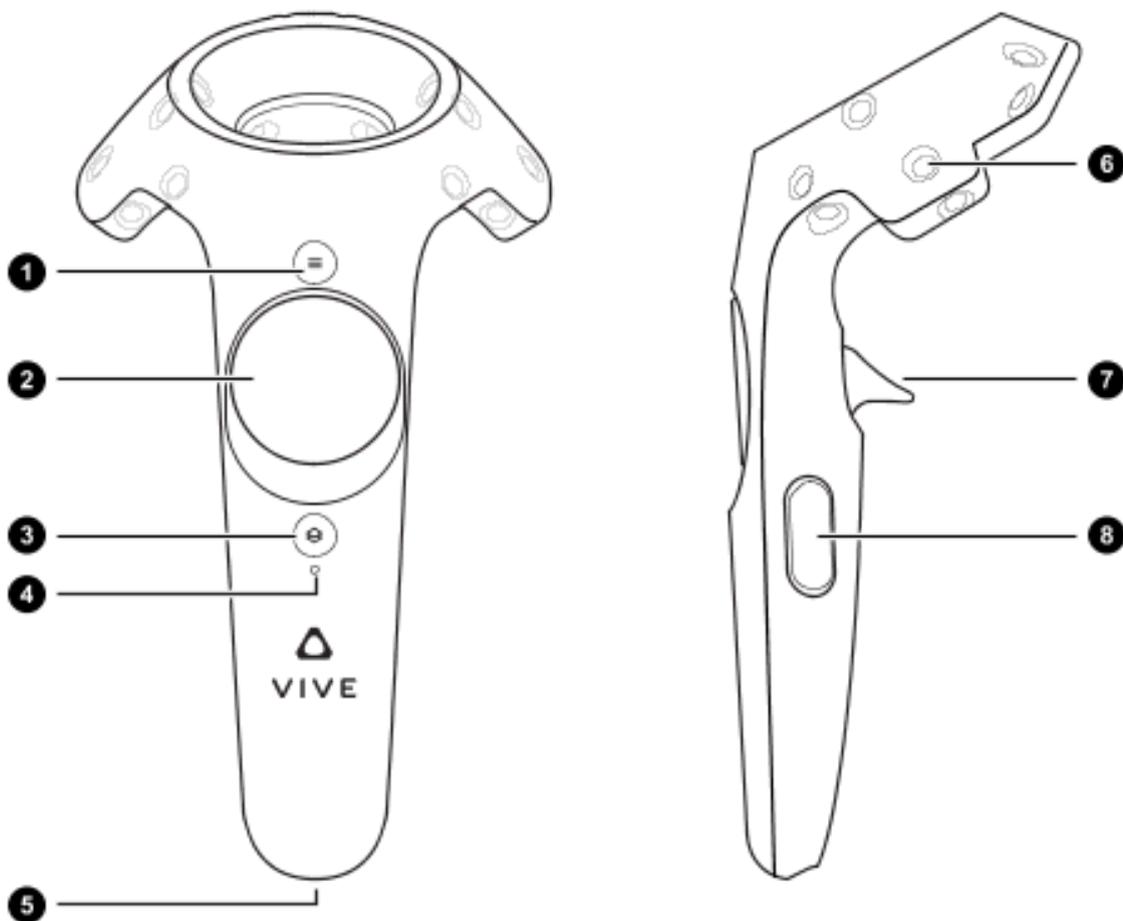


To launch Superposition in the Virtual Reality mode, do the following:

1. Select the **VIRTUAL REALITY** bookmark.
2. Select the desired preset (see **VR Ready Test** section for the list of presets) or choose your own settings by selecting **Custom**.
3. Select the graphics API to be used (DirectX or OpenGL).
4. Select the VR headset (*Oculus Rift or SteamVR for HTC Vive and others*).
5. Click **RUN**.

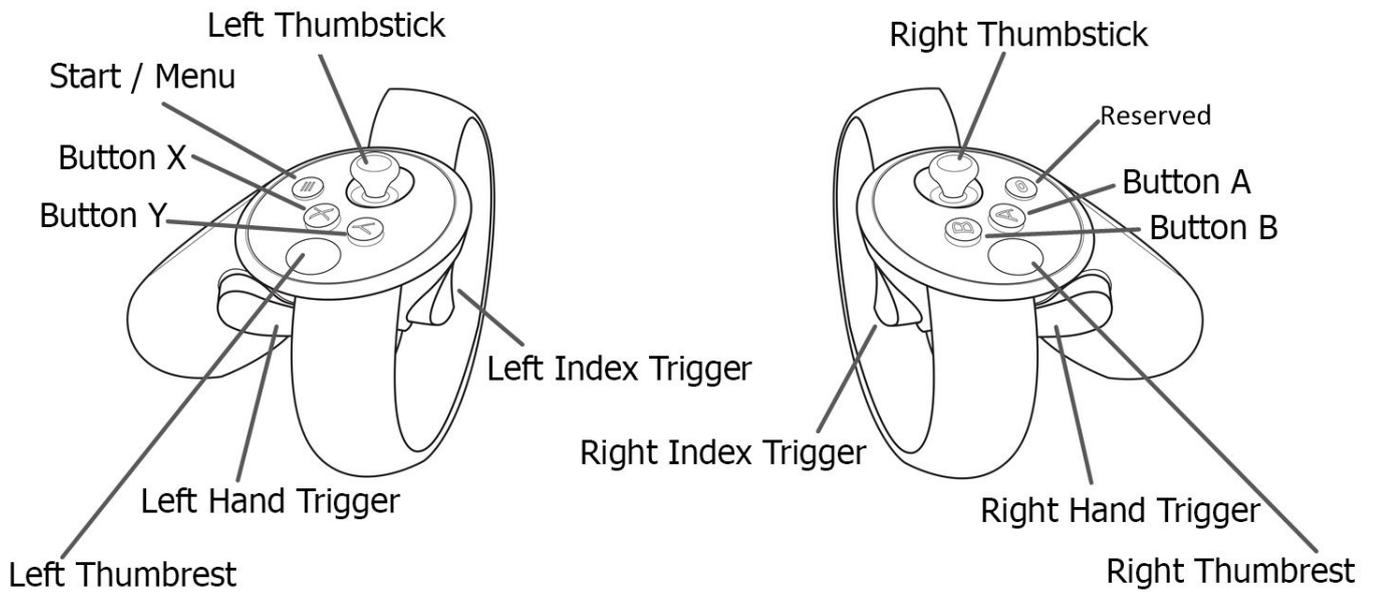
Controls Mapping

HTC Vive



Trigger (7)	<i>both joysticks</i>	Press: grab object Release: drop object
Trackpad (2)	<i>both joysticks</i>	Press and hold: select teleport location Release: teleport

Oculus Touch



Thumbstick	both joysticks	Press and hold – select teleport location Release – teleport
Thumbstick	left joystick	Movement (analogue)
Thumbstick	right joystick	Head rotation (discrete)
Button X	left joystick	Press and hold – select teleport point location, Release – teleport
Button A	right joystick	Press and hold – select teleport point location, Release – teleport
Index Trigger	both joysticks	Toggle object use (grab / release)

Floor Level Calibration Procedure

<p>Index Trigger + Hand Trigger + Thumbstick press</p>	<p>right joystick</p>	<p>Press and hold the combination while you are touching the floor with the right controller.</p> <p>Release to use current joystick position as the floor level.</p> <p>Right touch controller must be visible to at least one sensor.</p>
---	-----------------------	---

<p>Successfully calibrated floor level</p>	<p>Calibration failure</p>
 <p>The floor level has been calibrated successfully</p>	 <p>Controller is not visible by any sensor!</p>

Automation [Pro version only]

Command line automation is a flexible tool making it possible to perform benchmarking with various predefined scenarios and parameters as well as to generate reports in a convenient form to be processed later.

Run the program from the command line:

```
superposition_cli.exe [parameters]
```

You can specify all necessary parameters in the command line (see **Command Line Parameters**) or make an XML-file with certain benchmarking routine (see **XML Testing Routines**) and specify this file in the command line.

Command Line Parameters

The table below contains all available command line parameters.

Parameter [values]	Description
-api [directx / opengl]	Sets the API to be used.
-textures [low / medium / high]	Sets textures resolution.
-fullscreen [0 / 1 / 2]	Sets a fullscreen mode (disabled, enabled, borderless window).
-resolution [WxH]	Sets screen resolution.
-sound [0 / 1]	Turns the sound on / off.
-vr_emulation [WxH]	Enables a VR Emulation mode with specified resolution per eye (Oculus Rift: 1332x1586, HTC Vive: 1512x1680, HTC Vive Pro: 2016x2240).
-mode [default, frame, scene]	Sets the benchmark mode: default – play the benchmark scene [0..17] – play a given scene frame [0..5400] – play a given frame
-mode_duration [int]	Sets duration of the mode, in minutes.
-iterations [0..99999]	Sets the number of iterations to be saved to a single CSV report file. Each iteration consists of running the benchmark and quitting it. Without this parameter, the CSV report file will contain only the result of the last benchmark run, previous results will be overwritten.
-quality [low / medium / high / extreme / 4k_optimized / 8k_optimized]	Sets the quality preset (see Benchmark Presets).
-log_csv "report_file.csv"	Specifies a CSV-file to store per-frame statistics. Without this parameter, the report file will not be generated.
-log_csv_step [float]	Sets the time interval for per-frame statistics, in seconds. If less or equal to zero – statistics are written every frame.
-log_txt "report_file.txt"	Specifies a TXT-file to store general statistics. Without this parameter, the report file will not be generated.
-key <25-symbol product key>	Validates a given product key and generates a license file. Available in the command line interface only, won't work in an XML-file.
-xml "xml_file_to_load.xml"	Specifies an XML-file with a benchmarking routine (see XML Testing routines).
-dof [0 / 1]	Turns depth of field on / off.
-motion_blur [0 / 1]	Turns motion blur on / off.

Usage examples:

1. Run the benchmark with 800x600 resolution, Low quality preset, 3 times with sound off in windowed mode.

```
superposition_cli.exe -resolution 800x600 -quality low -mode default -iterations 3 -sound 0 -fullscreen 0
```

2. Run the benchmark using my_routine.xml file with a predefined routine.

```
superposition_cli.exe -xml "my_routine.xml"
```

3. Run the benchmark with High quality preset, playing scene 5 for 15 minutes.

```
superposition_cli.exe -quality high -mode scene 5 -mode_duration 15
```

4. Run the benchmark with High quality preset, 3 times saving reports to "c:\benchmark\my results\result.csv" and "log.txt" respectively.

```
superposition_cli.exe -quality high -mode default -iterations 3 -log_csv "c:\benchmark\my results\result.csv" - log_txt "log.txt"
```

XML Testing Routines

It is possible to run Superposition with a set of predefined parameters stored in an XML-file. The following routines are available out-of-the-box and are stored in

<Superposition_Install_Dir>/pro_xml_samples:

single_run_low.xml	Run a single pass with 720p Low preset.
single_run_medium.xml	Run a single pass with 1080p Medium preset.
single_run_high.xml	Run a single pass with 1080p High preset.
single_run_extreme.xml	Run a single pass with 1080p Extreme preset.
single_run_4k_medium.xml	Run a single pass with 4K Medium preset.
single_run_8k_low.xml	Run a single pass with 8K Low preset.
loop_frame_900_extreme_5min.xml	Run 900 th frame with 1080p Extreme preset for 5 minutes.
loop_run_high_30min.xml	Run with 1080p High preset for 30 minutes.
loop_scene_8_high_5min.xml	Run scene 8 with 1080p High preset for 5 minutes.
multiple_run_low_5times.xml	Run 5 times with 1080p Low preset.
multiple_run_low_and_high.xml	Run with 1080p Low and then with 1080p High preset.
multiple_run_low_dx_and_gl.xml	Run with 1080p Low preset using DirectX and then OpenGL API.
single_run_vr_htc_future.xml	Run a single pass in VR mode with Future preset for HTC Vive.
single_run_vr_htc_maximum.xml	Run a single pass in VR mode with Maximum preset for HTC Vive.
single_run_vr_oculus_minimum.xml	Run a single pass in VR mode with Minimum preset for Oculus Rift.
single_run_vr_oculus_optimum.xml	Run a single pass in VR mode with Optimum preset for Oculus Rift.

You can also make your own custom benchmarking routine using the following structure:

```

<superposition>                                <!-- Obligatory parent tag -->
  <pass>                                         <!-- Second-level tag (can have any name) determines a single pass with a certain set of parameters -->
    <parameter>value</parameter>               <!-- List of benchmarking parameters with specified values -->
    <..></..>
  </pass>
  <pass_directx>                               <!-- Second-level tag (can have any name) determines a single pass with a certain set of parameters -->
    <..></..>                                  <!-- List of benchmarking parameters with specified values -->
  </pass_directx>
  <pass_opengl>                               <!-- Second-level tag (can have any name) determines a single pass with a certain set of parameters -->
    <..></..>                                  <!-- List of benchmarking parameters with specified values -->
  </pass_opengl>
</superposition>

```

See **Command Line Parameters** section for the list of available parameters (parameters are case-insensitive). Here is an example of an XML-file with a custom benchmarking routine:

```

<?xml version="1.0" encoding="utf-8"?>
<superposition>
  <pass>
    <api>DirectX</api>                          <!-- DirectX, OpenGL -->
    <fullscreen>1</fullscreen>                  <!-- 0, 1, 2 (windowed fullscreen) -->
    <resolution>1280x720</resolution>
    <vr_emulation>1512x1680</vr_emulation>      <!-- VR Emulation (resolution per eye, Oculus: 1332x1586, HTC Vive: 1512x1680,
                                                HTC Vive Pro: 2016x2240) -->
    <quality>Low</quality>                      <!-- Low, Medium, High, Extreme, 4K_Optimized, 8K_Optimized -->
                                                <!-- or for VR emulation: Minimum, Optimum, Maximum, Future -->
    <textures>Low</textures>                    <!-- Low, Medium, High -->
    <dof>0</dof>                                <!-- 0, 1 -->
    <motion_blur>0</motion_blur>              <!-- 0, 1 -->
    <sound>0</sound>                           <!-- 0, 1 -->
    <mode>Default</mode>                       <!-- Default, Frame, Scene -->
    <iterations>1</iterations>                 <!-- Loop count for this pass -->
    <log_csv>result_low_directx.csv</log_csv>    <!-- Path to per-frame statistics -->
    <log_csv_step>0</log_csv_step>             <!-- Interval in per-frame statistics in seconds (less or equal zero - every frame) -->
    <log_txt>result_low_directx.txt</log_txt>    <!-- Path to general statistics -->
  </pass>
  <pass>
    <api>OpenGL</api>                          <!-- DirectX, OpenGL -->
    <fullscreen>1</fullscreen>                  <!-- 0, 1, 2 (windowed fullscreen) -->
    <resolution>1280x720</resolution>
    <quality>Low</quality>                      <!-- Low, Medium, High, Extreme, 4K_Optimized, 8K_Optimized -->
    <textures>Low</textures>                    <!-- Low, Medium, High -->
    <dof>0</dof>                                <!-- 0, 1 -->
    <motion_blur>0</motion_blur>              <!-- 0, 1 -->
    <sound>0</sound>                           <!-- 0, 1 -->
    <mode>Default</mode>                       <!-- Default, Frame, Scene -->
    <iterations>1</iterations>                 <!-- Loop count for this pass -->
    <log_csv>result_low_opengl.csv</log_csv>    <!-- Path to per-frame statistics -->
    <log_csv_step>0</log_csv_step>             <!-- Interval in per-frame statistics in seconds (less or equal zero - every frame) -->
    <log_txt>result_low_opengl.txt</log_txt>    <!-- Path to general statistics -->
  </pass>
</superposition>

```

Report Files

Report files with per-frame statistics are generated in CSV format and are compatible with any spreadsheet applications such as Microsoft Excel or OpenOffice Calc. They are written to the specified file with *.csv extension.

Report files with general statistics are generated in TXT format.

The report file contains the following information:

- ◆ CPU Name
- ◆ GPU Name
- ◆ GPU frequencies
- ◆ GPU temperature
- ◆ Current FPS for each frame
- ◆ Quality
- ◆ Textures quality (to be taken from the selected preset if not specified)
- ◆ Resolution
- ◆ Graphics API

Reports are saved to the following directory by default:

- ◆ For Windows 7/8/10, it is %userprofile%\Superposition\automation
- ◆ For Linux, it is ~/.Superposition/automation



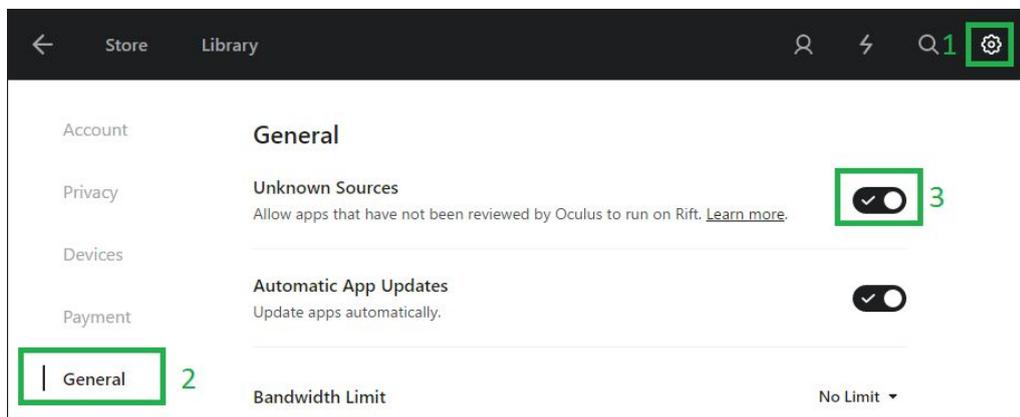
Report files will not be generated in case if **-log_csv** and **-log_txt** parameters are not specified.

Tips and Recommendations

This section contains some useful information regarding the use of the Superposition benchmark (hardware configuration settings, known operating system issues, etc.).

Oculus

- ◆ **Unknown Sources** checkbox should be enabled in **Oculus Home** → **Settings** → **General** to allow running this demo in HMD:



- ◆ Asynchronous Spacewarp (ASW) option is enabled for Oculus Rift by default, however, it may lead to significant performance drops (up to 45 FPS). To disable ASW, press **CTRL + Numpad1** on the keyboard.
- ◆ It's critical to calibrate the floor level to get the immersive experience. Please, refer to the **Floor Level Calibration Procedure** section. Floor level will be saved in the configuration file.
- ◆ If you are using SteamVR to launch application, there is no need for additional floor level calibration inside the application.
- ◆ Oculus Touch: No ThumbRest action support available.

SteamVR-supported HMDs

- ◆ **Steam application should be restarted before launching Superposition benchmark. If this doesn't help, reboot the PC and restart Steam.**

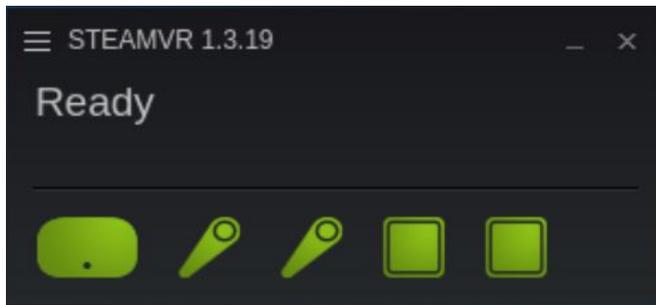


Don't start SteamVR application manually – it will be launched automatically. After quitting the application, you should manually close cmd terminal window.

Linux

- ◆ To avoid wrong joystick device detection: <https://github.com/denilsonsa/udev-joystick-blacklist>.
- ◆ Mesa OpenGL driver should have at least OpenGL 4.5 Core profile support.
- ◆ Controls may be sometimes unresponsive in the Game mode.

- ◆ Important information on running SteamVR for HTC Vive Pro & Ubuntu users can be found [here](#).
- ◆ For the VR Mode to work properly Steam and SteamVR must be launched. Make sure that the status displayed in the VR Monitor is **Ready** and all device indicators are green.



Uninstallation

Windows

Go to Start Menu → Control Panel → Programs and Features, select “**Unigine Superposition benchmark 1.1**”, and uninstall it.

Linux

Go to the application installation directory and run ***uninstall.sh*** script.