

Building the Orbit Game Engine

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Orbit depends on NVidia PhysX, Eigen and optionally also on Dear ImGui. It also depends on CMake to build your project.

1 Building NVidia PhysX

1.1 Customization

Go into `physx/buildtools/presets/public` and open your build preset (i.e. for MSVC x64 and VS 2019 `vc16win64.xml`). Set the following values:

```
PX_GENERATE_STATIC_LIBRARIES = True
NV_USE_STATIC_WINCRT         = True
```

1.2 Optional Customization

You may also want to change the following settings to reduce compilation and build time.

```
PX_BUILDSNIPPETS      = False
PX_BUILDPUBLICSAMPLES = False
```

1.3 Building NVidia PhysX

Open a command prompt and change into `physx/` and run `generate_projects` (either the `.sh` or the `.bat`) and select the generator you want to use (the one you changed the settings for in the previous steps).

1.4 Building NVidia PhysX

You can find your build files in a folder in `physx/compiler/` with the name of your chosen generator. Now you want to build the Debug and Release versions of PhysX.

2 Eigen

Download Eigen into a folder on your system (decompress the downloaded file).

3 ImGui (optional)

Clone ImGui into a folder on your system (or download and decompress it).

4 d3dx12.h

The `d3dx12.h` file that comes with Orbit (this is the DirectX 12 helper library by Microsoft that can be found [here](#)) must be placed somewhere your build system can find it. Under Visual Studio, you could create a folder on your system, put the file in that folder and set that folder as an additional include directory.

5 CMake

Open a command prompt and change into the Orbit root directory. Run the `cmake` command

```
cmake
  -S .
  -B build
  -DPHYSX_ROOT_PATH:PATH=/your/path/to/physx_root
  -DPHYSX_LIBRARY_PATH:PATH=/your/path/to/physx_libs
  -DEIGEN_ROOT_PATH:PATH=/your/path/to/eigen_root
  [-DIMGUI_ROOT_PATH:PATH=/your/path/to/imgui_root]
```

If you do not wish to use ImGui, replace the last line of the command with `-DWITH_DEAR_IMGUI:BOOL=False`. If you do not wish to build the samples, you can also add `-DBUILD_SAMPLES:BOOL=False`.

The PhysX root path is the path to the folder that contains the `physx` and `physxshared` directories. The PhysX Library folder is the folder `physx_root/physx/bin/<configuration>` where `<configuration>` is the configuration that you used to build PhysX. Be careful to select the `.md` folder and not the `.mt` folder. The latter won't work with Orbit.

6 Building Orbit

Now you only have to build Orbit for Debug and Release. Project files have been generated in the `build` folder.