Configuration Guide for HFD_6 in iMSTK

1. Library and Header Files Porvided by HFD_6

Since iMSTK currently supports only x64 platforms, HFD_6 provides x64 library files for both **Debug** and **Release** configurations, as shown below:

Platform	**Configuration**			
X64	**debug**		**release**	
	HFD_API64d.lib	HFD_API64d.dll	HFD_API64.lib	HFD_API64.dll

Header Files：HFD_OPEN.h 、hfdDefines.h 、hfdVector.h、 hfdVector.inl

2. New Files in iMSTK

To integrate the HFD-6 device into iMSTK ， two classes have been developed: HFDHapticDeviceManager and HFDHapticDeviceClient：

- imstkHFDHapticDeviceManager.h
- imstkHFDHapticDeviceManager.cpp
- imstkHFDHapticDeviceClient.h
- imstkHFDHapticDeviceClient.cpp

HFDHapticDeviceManager manages the HFD-6 device at the application level,including: **imstkHFDHapticDeviceManager.h** and **imstkHFDHapticDeviceManager.cpp**.

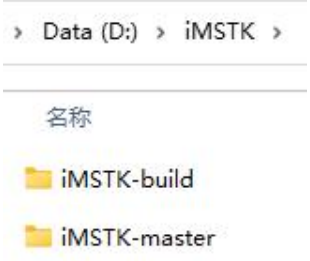
HFDHapticDeviceClient directly interfaces with HFD-6 via the **HFD_API64** library, including: **imstkHFDHapticDeviceClient.h** and **imstkHFDHapticDeviceClient.cpp**.

3. Configuration Steps

Project Structure:

- iMSTK source files: Located in the **iMSTK-master** folder.
- CMake-generated files: Located in the **iMSTK-build** folder.

As shown in the figure below.



Step1：Copy Class Files

Copy the following files to **iMSTK-master>Source>Devices**:

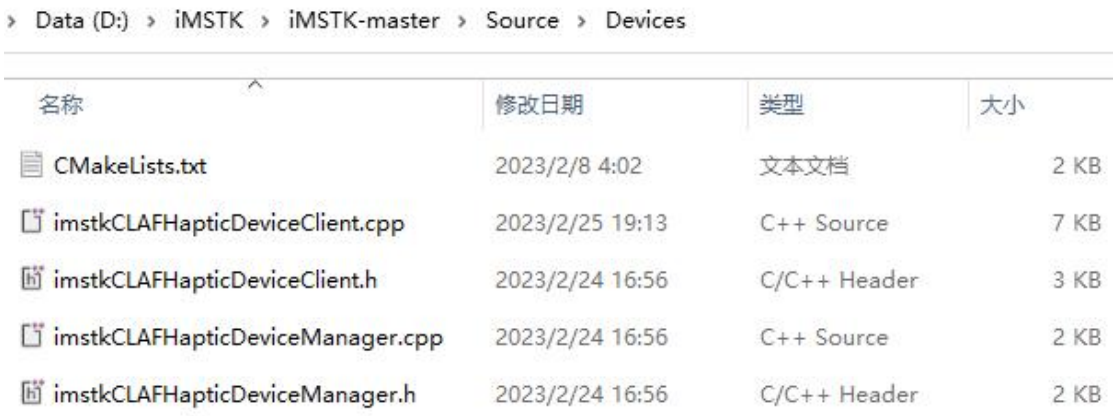
imstkHFDHapticDeviceManager.h

imstkHFDHapticDeviceManager.cpp

imstkHFDHapticDeviceClient.h

imstkHFDHapticDeviceClient.cpp

As shown below.



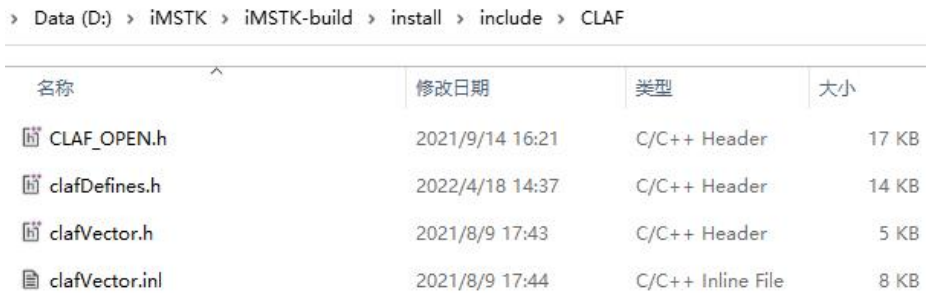
Step2：Configure Header Files

Create a folder named **HFD** under **iMSTK-build>install>include**.

Place the following header files into this folder:

- **HFD_OPEN.h**
- **hfdDefines.h**
- **hfdVector.h**
- **hfdVector.inl**

As shown below.



Step3：Configure Library Files

Copy the following library files to **iMSTK-build>install>lib**:

- **HFD_API64.lib**

- **HFD_API64d.lib**

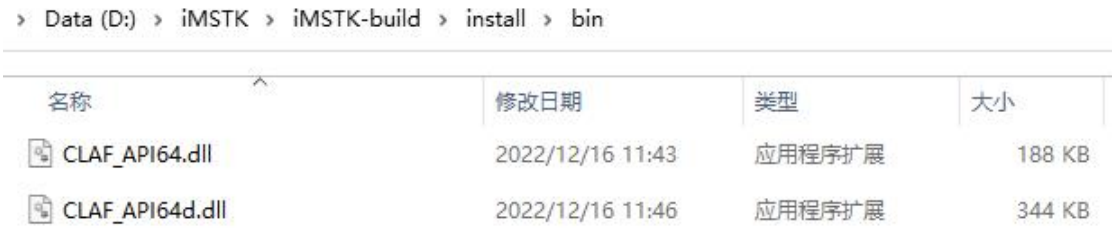
As shown below.

Step4：Configure DLL Files

Copy the following DLL files to **iMSTK-build>install>bin**:

- **HFD_API64.dll**
- **HFD_API64d.dll**

As shown below.

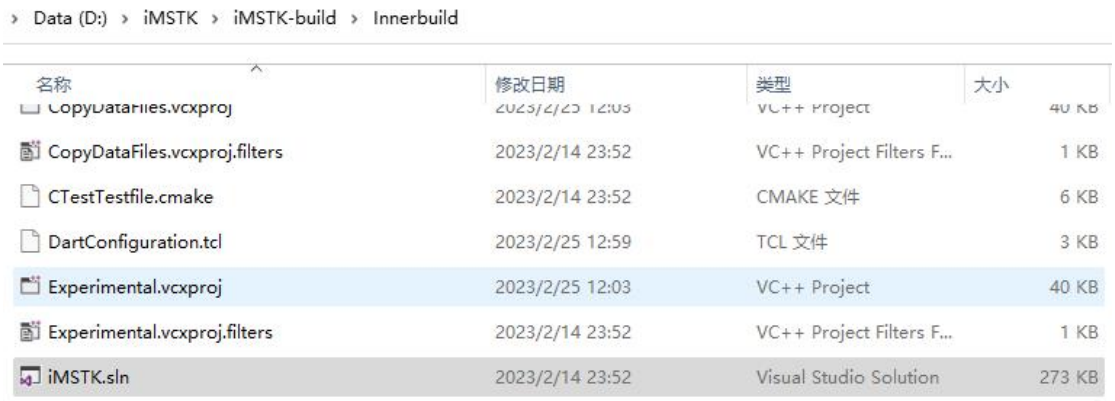


Step5：Open iMSTK Solution in Visual Studio 2019

1. Navigate to **iMSTK-build>Innerbuild**.

2. Open the **iMSTK.sln** solution file.

As shown below.

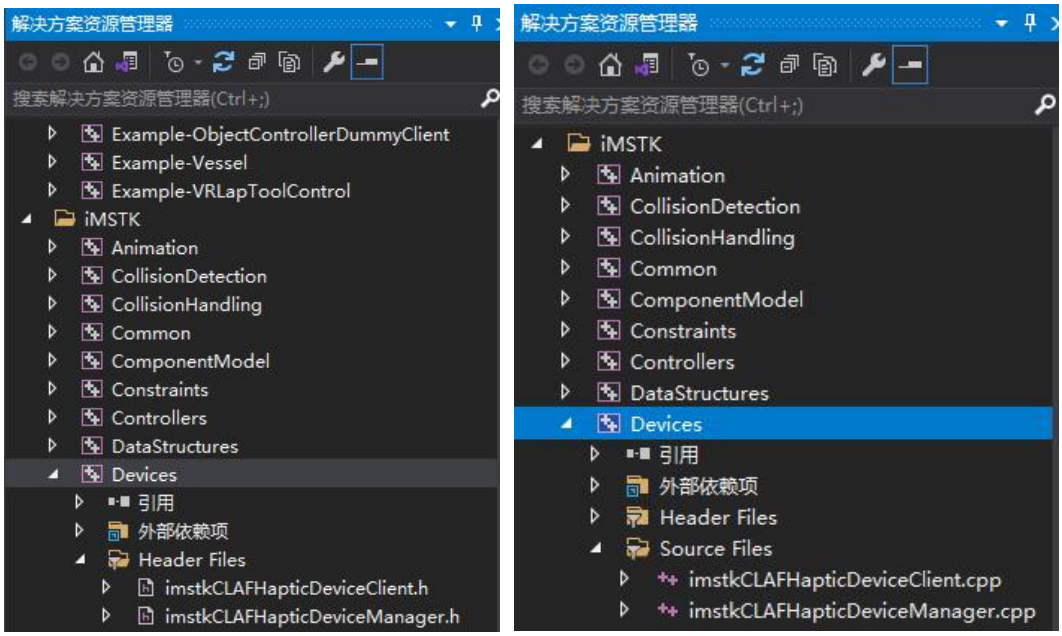


Step6：Add Files to Visual Studio Project

1. **Header Files**: Add **imstkHFDHapticDeviceManager.h** and **imstkHFDHapticDeviceClient.h** to the **Header Files** section under the **Devices** Project.

2. **Source Files**: Add **imstkHFDHapticDeviceManager.cpp** and **imstkHFDHapticDeviceClient.cpp** to **Source Files** section.

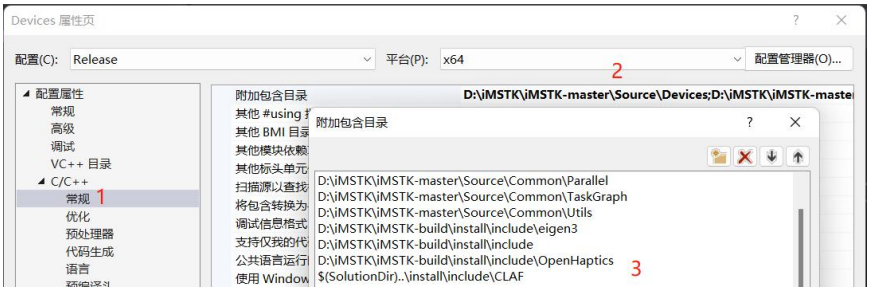
As shown below.



Step8：Configure Project Properties

1. Additional Include Directories:
   - Navigate to **Properties > C/C++ > General > Additional Include Directories**.
   - Add the path to the **HFD** folder (absolute or relative).
2. Preprocessor Definetions:
   - Navigate to **Properties > C/C++ > Preprocessor > Preprocessor Definitions**.
   - Add **iMSTK_USE_HFDHAPTICS**.

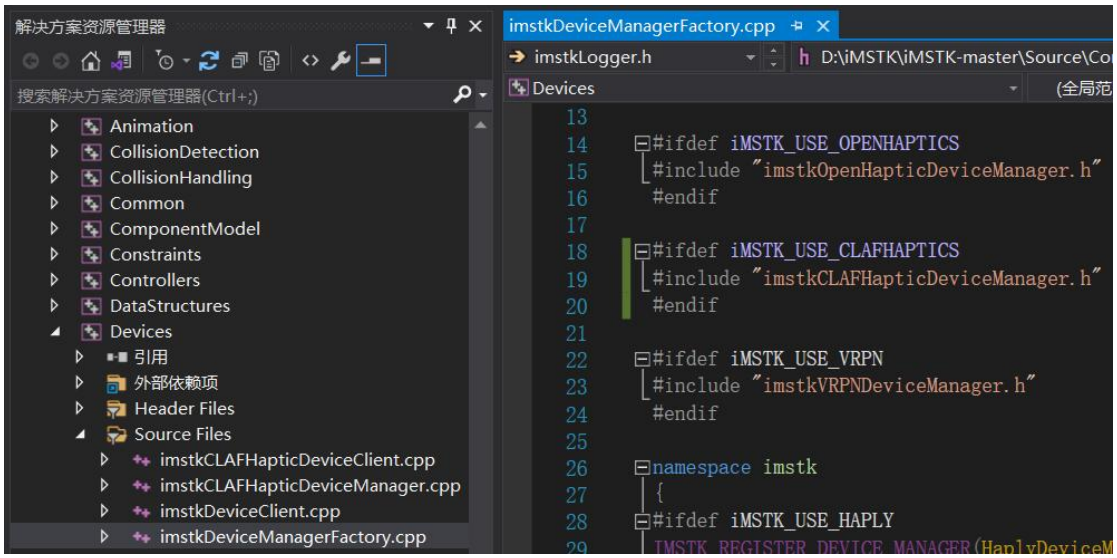
As shown below.

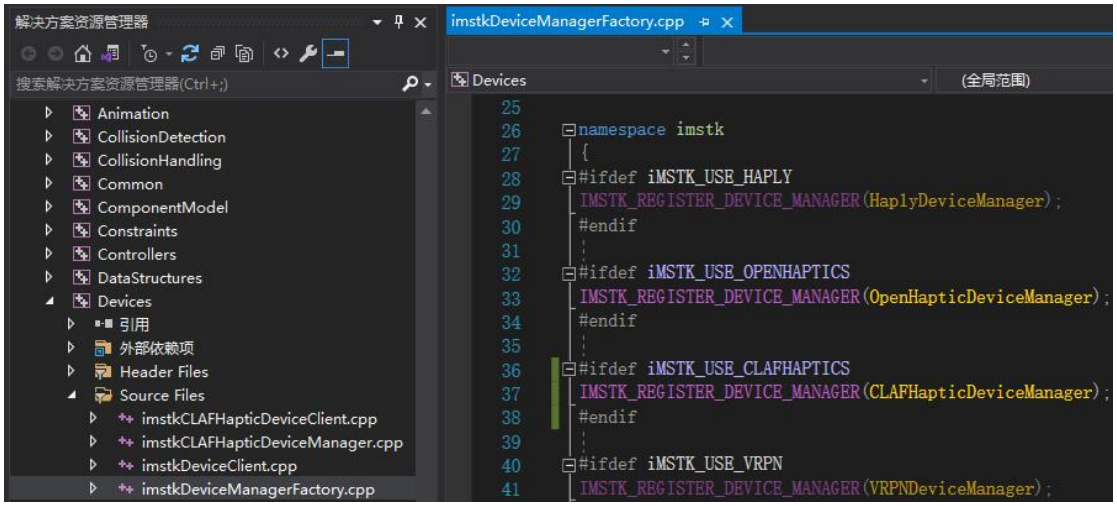


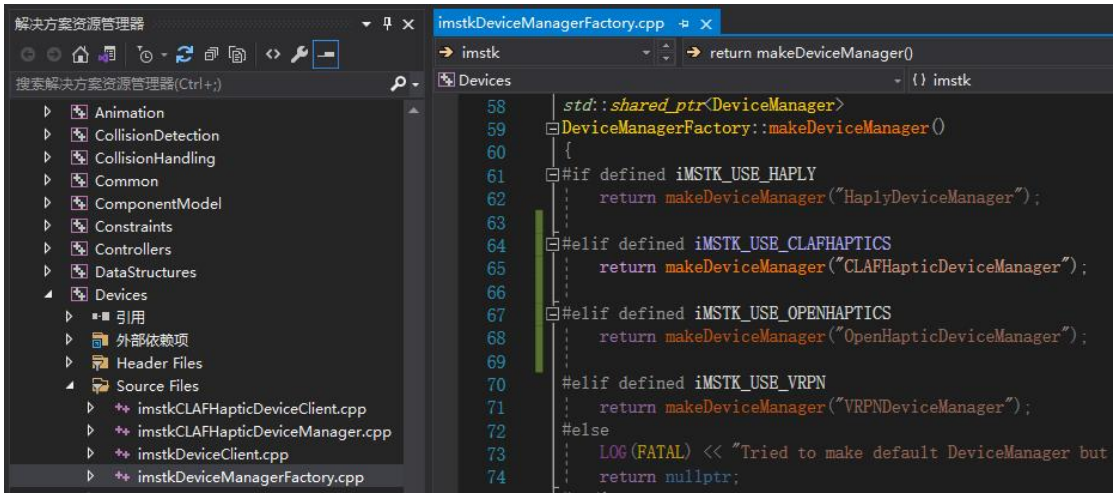
Step9：Modify Source Code

1. Open **imstkDeviceManagerFactory.cpp** under the **Devices** project.

2. Add conditional compilation code before the OPENHAPTICS-related code in the **makeDeviceManager** function.







Step10：Build and Test

1. Rebuild the **Devices** project in Debug/Release mode to generate **Devicesd.lib** or **Devices.lib**.
2. For Example Projects:
   - In the project properties, navigate to **Linker > Input > Additional Dependencies**.
   - Add the path to **HFD_API64.lib**.
3. Rebuild the example project and run it to test the HFD-6 device.