

# GSL application problems in C++ Project with Visual Studio 2019 and Windows 10.

To: help-gsl-request @gnu.org

Subject: subscribe

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Dear GSL engineers,

I am writing to ask for your help with my GSL application. The following appendix instructions are detailed processing information causing my fatal error.

Thank you ahead for your kind reply!

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## Appendix

### ✚ Application purpose:

Apply GSL to my C++ projects in Window 10 System with Visual Studio 2019.

### ✚ Part I:

#### ■ Windows 10 operation system (64 bits):

Windows 规格	
版本	Windows 10 家庭中文版
版本号	20H2
安装日期	2021/1/24
操作系统内部版本	19042.928
体验	Windows Feature Experience Pack 120.2212.551.0

#### ■ Visual Studio 2019:

Visual Studio 2019 community version.

#### ■ CMake:

version 3.20.2;

## ■ GSL:

It is configured as the instructions in following website (“Install GSL on Windows”):

<https://solarianprogrammer.com/2020/01/26/getting-started-gsl-gnu-scientific-library-windows-macos-linux/>

### ➤ step 1: git

version 2.31.1 for Windows, installed as default recommendations.

### ➤ step 2: vcpkg & GSL

GSL version 2.6.

(steps are as following shortcuts)

```
PowerShell 7.1.3
Copyright (c) Microsoft Corporation.

https://aka.ms/powershell
Type 'help' to get help.

PS C:\Windows\System32> cd D:\VCPKG\
PS D:\VCPKG> mkdir DEV

    Directory: D:\VCPKG

Mode                LastWriteTime         Length Name
----                -
d----              2021/5/12   14:40         DEV

PS D:\VCPKG> cd DEV
PS D:\VCPKG\DEV> git clone https://github.com/microsoft/vcpkg.git
Cloning into 'vcpkg'...
remote: Enumerating objects: 110174, done.
remote: Counting objects: 100% (70/70), done.
remote: Compressing objects: 100% (35/35), done.
remote: Total 110174 (delta 42), reused 50 (delta 35), pack-reused 110104
Receiving objects: 100% (110174/110174), 33.68 MiB | 659.00 KiB/s, done.
Resolving deltas: 100% (69431/69431), done.
Updating files: 100% (7567/7567), done.
PS D:\VCPKG\DEV>
PS D:\VCPKG\DEV> cd vcpkg
PS D:\VCPKG\DEV\vcpkg> .\bootstrap-vcpkg.bat
Downloading https://github.com/microsoft/vcpkg-tool/releases/download/2021-05-05-9f849c4c43e50d1b16186
ae76681c27b0c1be9d9/vcpkg.exe -> D:\VCPKG\DEV\vcpkg\vcpkg.exe
Done.

Telemetry
-----
vcpkg collects usage data in order to help us improve your experience.
The data collected by Microsoft is anonymous.
You can opt-out of telemetry by re-running the bootstrap-vcpkg script with -disableMetrics,
passing --disable-metrics to vcpkg on the command line,
or by setting the VCPKG_DISABLE_METRICS environment variable.

Read more about vcpkg telemetry at docs/about/privacy.md
PS D:\VCPKG\DEV\vcpkg> .\vcpkg integrate install
Applied user-wide integration for this vcpkg root.

All MSBuild C++ projects can now #include any installed libraries.
Linking will be handled automatically.
Installing new libraries will make them instantly available.

CMake projects should use: "-DCMAKE_TOOLCHAIN_FILE=D:\VCPKG\DEV\vcpkg\scripts/buildsystems/vcpkg.cmake"
```

```

PS D:\VCPKG\DEV\vcpkg> .\vcpkg install gsl:gsl:x64-windows
Computing installation plan...
The following packages will be built and installed:
  gsl[core]:x64-windows -> 2.6
  gsl[core]:x86-windows -> 2.6
Detecting compiler hash for triplet x64-windows...
Detecting compiler hash for triplet x86-windows...
Could not locate cached archive: C:\Users\xuxf\AppData\Local\vcpkg\archives\55\536c83cf63e2416f3bf397dad1ef14b427f52b0.zip
Could not locate cached archive: C:\Users\xuxf\AppData\Local\vcpkg\archives\dc\dcaa4ab11c9eaf9383067f71480919ffe962654d.zip
Starting package 1/2: gsl:x64-windows
Building package gsl[core]:x64-windows...
-- Downloading https://ftp.gnu.org/gnu/gsl/gsl-2.6.tar.gz -> gsl-2.6.tar.gz...
-- Extracting source D:\VCPKG\DEV\vcpkg\downloads\gsl-2.6.tar.gz
-- Applying patch 0001-configure.patch
-- Applying patch 0002-add-fp-control.patch
-- Using source at D:\VCPKG\DEV\vcpkg\buildtrees\gsl/src\gsl-2-fb511965d5.clean
-- Found external ninja('1.10.2').
-- Configuring x64-windows
-- Building x64-windows-dbg
-- Building x64-windows-rel
-- Installing: D:\VCPKG\DEV\vcpkg\packages\gsl_x64-windows/share/gsl/usage
-- Installing: D:\VCPKG\DEV\vcpkg\packages\gsl_x64-windows/share/gsl/copyright
-- Performing post-build validation
-- Performing post-build validation done
A suitable version of 7zip was not found (required v18.1.0). Downloading portable 7zip v18.1.0...
Downloading 7zip...
  https://www.nuget.org/api/v2/package/7-Zip.CommandLine/18.1.0 -> D:\VCPKG\DEV\vcpkg\downloads\7-zip.commandline.18.1.0.nupkg
Extracting 7zip...
A suitable version of nuget was not found (required v5.5.0). Downloading portable nuget v5.5.0...
Downloading nuget...
  https://dist.nuget.org/win-x86-commandline/v5.5.1/nuget.exe -> D:\VCPKG\DEV\vcpkg\downloads\22ea847d-nuget.exe
Stored binary cache: C:\Users\xuxf\AppData\Local\vcpkg\archives\55\536c83cf63e2416f3bf397dad1ef14b427f52b0.zip
Building package gsl[core]:x64-windows... done
Installing package gsl[core]:x64-windows...
Installing package gsl[core]:x64-windows... done
Elapsed time for package gsl:x64-windows: 1.177 min
Starting package 2/2: gsl:x86-windows
Building package gsl[core]:x86-windows...
-- Using cached D:\VCPKG\DEV\vcpkg\downloads\gsl-2.6.tar.gz
-- Cleaning sources at D:\VCPKG\DEV\vcpkg\buildtrees\gsl/src\gsl-2-fb511965d5.clean. Use --editible to skip cleaning for the packages you specify.
-- Extracting source D:\VCPKG\DEV\vcpkg\downloads\gsl-2.6.tar.gz
-- Applying patch 0001-configure.patch
-- Applying patch 0002-add-fp-control.patch
-- Using source at D:\VCPKG\DEV\vcpkg\buildtrees\gsl/src\gsl-2-fb511965d5.clean
-- Found external ninja('1.10.2').
-- Configuring x86-windows
-- Building x86-windows-dbg
-- Building x86-windows-rel
-- Installing: D:\VCPKG\DEV\vcpkg\packages\gsl_x86-windows/share/gsl/usage
-- Installing: D:\VCPKG\DEV\vcpkg\packages\gsl_x86-windows/share/gsl/copyright
-- Performing post-build validation
-- Performing post-build validation done
Stored binary cache: C:\Users\xuxf\AppData\Local\vcpkg\archives\dc\dcaa4ab11c9eaf9383067f71480919ffe962654d.zip
Building package gsl[core]:x86-windows... done
Installing package gsl[core]:x86-windows...
Installing package gsl[core]:x86-windows... done
Elapsed time for package gsl:x86-windows: 36.29 s

Total elapsed time: 1.934 min

The package gsl is compatible with built-in CMake targets:

  find_package(GSL REQUIRED)
  target_link_libraries(main PRIVATE GSL::gsl GSL::gslcblas)

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```

➤ step 3: write a CMakeList.txt

```
1 cmake_minimum_required(VERSION 3.10 FATAL_ERROR)
2
3 project(DentalDose)
4
5 set(CMAKE_CXX_STANDARD 17)
6 set(CMAKE_CXX_STANDARD_REQUIRED True)
7
8 if(MSVC)
9     add_compile_options(/W4)
10 else()
11     add_compile_options(-Wall -Wextra -pedantic)
12 endif()
13
14 find_package(GSL REQUIRED)
15 link_libraries(GSL::gsl GSL::gslcblas)
16
17 add_executable(DentalDose DentalDose.cc)
```

➤ step 4: testing project

project name: DentalDose;

project main: DentalDose.cc;

```
#include <iostream>
#include <gsl/gsl_sf.h>

int main(int argc, char** argv)
{
    std::cout << gsl_sf_gamma_inc(1.5, 0.5) << std::endl;
    std::cout << gsl_sf_gamma_inc_Q(1.5, 0.5) << std::endl;
    std::cout << gsl_sf_gamma_inc_P(1.5, 0.5) << std::endl;
    system("pause");
    return 0;
}
```

➤ step 5: Apply Cmake to configure and build the project.

**ERROR:**

Name	Value
CMAKE_CONFIGURATION_TYPES	Debug;Release;MinSizeRel;RelWithDebInfo
CMAKE_INSTALL_PREFIX	C:/Program Files (x86)/DentalDose
GSL_CBLAS_LIBRARY	GSL_CBLAS_LIBRARY-NOTFOUND
GSL_CBLAS_LIBRARY_DEBUG	GSL_CBLAS_LIBRARY_DEBUG-NOTFOUND
GSL_CONFIG_EXECUTABLE	GSL_CONFIG_EXECUTABLE-NOTFOUND
GSL_INCLUDE_DIR	GSL_INCLUDE_DIR-NOTFOUND
GSL_LIBRARY	GSL_LIBRARY-NOTFOUND
GSL_LIBRARY_DEBUG	GSL_LIBRARY_DEBUG-NOTFOUND

Press Configure to update and display new values in red, then press Generate to generate selected build files.

Configure Generate Open Project Current Generator: Visual Studio 16 2019

```

Selecting Windows SDK version 10.0.19041.0 to target Windows 10.0.19042.
The C compiler identification is MSVC 19.28.29915.0
The CXX compiler identification is MSVC 19.28.29915.0
Detecting C compiler ABI info
Detecting C compiler ABI info - done
Check for working C compiler: D:/VisualStudio2019/VC/Tools/MSVC/14.28.29910/bin/Hostx64/x64/cl.exe - skipped
Detecting C compile features
Detecting C compile features - done
Detecting CXX compiler ABI info
Detecting CXX compiler ABI info - done
Check for working CXX compiler: D:/VisualStudio2019/VC/Tools/MSVC/14.28.29910/bin/Hostx64/x64/cl.exe - skipped
Detecting CXX compile features
Detecting CXX compile features - done
Could NOT find PkgConfig (missing: PKG_CONFIG_EXECUTABLE)
CMake Error at D:/CMAKE/share/cmake-3.20/Modules/FindPackageHandleStandardArgs.cmake:230 (message):
  Could NOT find GSL (missing: GSL_INCLUDE_DIR GSL_LIBRARY GSL_CBLAS_LIBRARY)
  (found version "")
Call Stack (most recent call first):
  D:/CMAKE/share/cmake-3.20/Modules/FindPackageHandleStandardArgs.cmake:594 (_FPHSA_FAILURE_MESSAGE)
  D:/CMAKE/share/cmake-3.20/Modules/FindGSL.cmake:151 (find_package_handle_standard_args)
  CMakeLists.txt:31 (find_package)

Configuring incomplete, errors occurred!
See also "D:/WORKING FILE/MYCODING/DentalDOSE/DentalDose/BUILD/CMakeFiles/CMakeOutput.log".

```

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Would you please help me analyze the above “ERROR” and refer me to some possible solutions? Thank you very much!