OpenLB technical report: Compiling OpenLB with Linux Bash for Windows

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The here described installation procedure has been tested with OpenLB 1.1 and Windows 10 x64.

1. Make sure you are using a 64-bit version of Windows 10 with the Anniversary Update

2. Open the Settings app and go to Update & Security - For Developers. Activate the Developer Mode switch here to enable Developer Mode.

3. Enable installation of apps outside the Windows Store
4. Open the Control Panel, click Programs and select Turn Windows Features On or Off under Programs and Features. Enable the Windows Subsystem for Linux (Beta) option in the list here and click OK.

5. Reboot

6. After the computer restarts click the Start button and type ”bash”
7. type "y" to accept the license

8. Wait for the Linux image to be downloaded then create a UNIX username and password

9. Before installing the required libraries run:
   \texttt{sudo apt-get update}

10. Next, install the g++ compiler, which you will need to compile C++ programs:
    \texttt{sudo apt-get install g++ make}

11. To benefit from the efficient parallelization, you will probably want to run the program on more than one core, so it is recommended to install Open-MPI:
    \texttt{sudo apt-get install openmpi-bin openmpi-doc libopenmpi-dev}

12. Download OpenLB from \url{http://www.openlb.net/} and unzip it to a folder (e.g. C:\Users\USERNAME\Documents\openlb).

13. Navigate to this folder within the Linux Bash (e.g. \texttt{cd /mnt/c/Users/USERNAME/Documents/openlb})

14. Finally, go into the root folder of OpenLB and type \texttt{make} to compile the software library and all examples. If your system is set up correctly, you should see a lot compiler messages but no errors.