

Abaqus user subroutine requires a Fortran Compiler. Until Nov 2020, you could get free Student version of **Intel Parallel Studio XE**, which was then replaced by Intel oneAPI base toolkit (free).

Here are the apps I installed in May 2021 for abaqus-r, in the following order.

1. Visual studio 2019 community Edition: <https://visualstudio.microsoft.com/vs/compare/>
2. reboot
3. Intel oneAPI Base Toolkit 2021.2:
<https://software.intel.com/content/www/us/en/develop/tools/oneapi/base-toolkit/download.html>
4. Intel oneAPI HPC Toolkit 2021.2 (this has a Fortran compiler):
<https://software.intel.com/content/www/us/en/develop/tools/oneapi/hpc-toolkit/download.html>
5. Reboot
6. Open Base Toolkit and repair. If there were any problems during installation, they will be fixed in this step.
7. Open HPC toolkit and repair. Sometimes, there could be problems which were not identified during initial installation.
8. Abaqus 2020. Do not install any component of fe-safe or Tosca if you do not have licenses to it or else, Abaqus won't be installed properly. It caused problems for me. I reinstalled without those and abaqus worked.
9. Modify the custom_v6.env file (in C:\SIMULIA\EstProducts\2020\win_b64\SMA\site) by adding the following line at the end of the file: `compile_fortran += ['/names:lowercase',]`
10. Once installation is completed, edit abq2020.bat (in C:\Simulia\Commands). Need to set path for fortran compiler and mkl. The following lines are to be added to the top of the abq2020.bat file above @echo off line. Refer lines below:
`SET PATH=%PATH%;C:\Program Files
(x86)\Intel\oneAPI\compiler\2021.2.0\windows\bin\intel64;
call "C:\Program Files (x86)\Intel\oneAPI\compiler\2021.2.0\env\vars.bat" -arch intel64
call "C:\Program Files (x86)\Intel\oneAPI\mkl\2021.2.0\env\vars.bat" intel64`
11. Reboot

Note that as subsequent versions of oneAPI compilers are released, the folder name "2021.2.0" will change. So, while editing the bat file, one has to take care of it accordingly.