

## Elmer WSL Debian 12 with Elmer Virtual Machine Scripts (2)

The previous version was compiled using the oneAPI intel-mkl, but the View Factors for heat transfer analysis did not work.

So, I recompiled using intel-mkl in the repository, even though the Pardiso solver was not available.

It appears that a new feature has been added to MeshRemeshing.F90.

However, the library included with the VM scripts lacks sufficient PMMG-related functionality, resulting in a compilation failure. I managed to resolve this issue by replacing it with the Fortran code from two weeks ago.

This WSL distribution is built using Elmer Virtual Machine Scripts.

Faster than VirtualBox

Function turned off

GridDataReader: The purpose of this library is unknown.

OCC (Geometry viewer): This is the geometry viewer for OpenCASCADE Community Edition.

VTK(ElmerVTK): This is Elmer's visualization toolkit.

How to use

Commands: "ElmerSolver", "ElmerGrid", "ElmerGUI", "paraview"

The username for the WSL is "elmeruser" and the password "elmerfem".

I recommend changing the password using the "passwd" command.

Confirmed solution methods

BiCGStab worked in both single and parallel modes.

MUMPS worked in both single and parallel modes.

Import methods

Step 1: Import a Linux Distribution

Open a command prompt or PowerShell window.

Run the following command to import the desired Linux distribution (replace elmer\_debian12 with your preferred name and adjust the paths accordingly):

```
wsl --import elmer_debian12 c:\elmer_debian12 .\ ElmerWSL_with_ElmerVM_Scripts2.tar
```

(¥ means backslash)

For more details, you can refer to the official documentation: Use Custom Distro with WSL.

<https://learn.microsoft.com/en-us/windows/wsl/use-custom-distro>

Step 2: Change User (from root to elmeruser)

Edit the /etc/wsl.conf file within Elmer Debian WSL distribution.

Add the following section to set the default user to elmeruser:

```
[user]
```

```
default=elmeruser
```

Result of operation check

```
*****
```

```
MAIN: ElmerSolver finite element software, Welcome!
```

```
MAIN: This program is free software licensed under (L)GPL
```

```
MAIN: Copyright 1st April 1995 - , CSC - IT Center for Science Ltd.
```

```
MAIN: Webpage http://www.csc.fi/elmer, Email elmeradm@csc.fi
```

```
MAIN: Version: 9.0 (Rev: e6ab95b39, Compiled: 2024-04-15)
```

```
MAIN: Running one task without MPI parallelization.
```

```
MAIN: Running with just one thread per task.
```

```
MAIN: HYPRE library linked in.
```

```
MAIN: MUMPS library linked in.
```

```
MAIN: MMG library linked in.
```

```
MAIN: ParMMG library linked in.
```

```
MAIN: Lua interpreter linked in.
```

```
MAIN: Zoltan library linked in.
```

```
*****
```

99% tests passed, 3 tests failed out of 392

Label Time Summary:

aster = 2.46 sec\*proc (1 test)

block	= 29.85 sec*proc (11 tests)
cmodes	= 15.67 sec*proc (6 tests)
contact	= 7.38 sec*proc (3 tests)
control	= 22.49 sec*proc (9 tests)
eigen	= 2.72 sec*proc (1 test)
elasticity	= 7.29 sec*proc (3 tests)
elasticsolve	= 22.54 sec*proc (9 tests)
eliminate	= 2.39 sec*proc (1 test)
em-wave	= 5.42 sec*proc (2 tests)
extrude	= 9.41 sec*proc (4 tests)
fsi	= 2.59 sec*proc (1 test)
harmonic	= 7.63 sec*proc (3 tests)
heateq	= 19.21 sec*proc (8 tests)
helmholtz	= 12.26 sec*proc (5 tests)
lua	= 22.33 sec*proc (8 tests)
lumping	= 13.48 sec*proc (5 tests)
matc	= 43.36 sec*proc (17 tests)
mortar	= 22.64 sec*proc (9 tests)
n-t	= 18.40 sec*proc (7 tests)
namespace	= 13.40 sec*proc (5 tests)
p-fem	= 25.66 sec*proc (9 tests)
parallel	= 3.11 sec*proc (4 tests)
particle	= 10.09 sec*proc (4 tests)
plate	= 9.93 sec*proc (4 tests)
quick	= 1027.84 sec*proc (392 tests)
radiator	= 11.20 sec*proc (3 tests)
restart	= 2.90 sec*proc (1 test)
serendipity	= 47.38 sec*proc (17 tests)
serial	= 1024.73 sec*proc (388 tests)
shell	= 15.77 sec*proc (6 tests)
transient	= 35.92 sec*proc (14 tests)
umat	= 7.29 sec*proc (3 tests)
useextrude	= 33.85 sec*proc (13 tests)
vector_element	= 33.23 sec*proc (12 tests)
vtu	= 7.30 sec*proc (3 tests)
whitney	= 22.98 sec*proc (9 tests)

Total Test time (real) = 65.39 sec

The following tests FAILED:

249 - ElementUnitTest\_edge\_quadratic (Failed)

286 - FixTangentVelo (Failed)

567 - SecondOrderEdgeElement2D\_BCs (Failed)

(EOF)