

Compilers and Builders on HPC cluster:

What is Compiler?

Compilers are special programs which translate a programming language's source code into machine code, bytecode, or another programming language. They are designed differently for specific os and computer architectures.

More info on Compilers:

[Wiki Compilers](#)

Compilers:

There are multiple versions and multiple types of compilers available on the cluster. The basic compiler types available are:

- GNU compilers
- NVIDIA compilers -Cuda and pgi
- Intel Compilers
- MPI Compilers
- MRCC Compilers
- Fortan Compilers
- Ruby Compilers

There is also a java compiler which converts machine code to bytecode.

Software Builders:

There are many versions and types of builders which use different versions of compilers.

- Cmake
- Ninja
- Make

Additional software building tools can be installed on the user local environment or conda environment if necessary.

How to load a version of Compilers?

To see most of the available compilers and builders, use the following command

```
module avail *compilers* *mpi* *cmake* *java* *mrcc* *net*
```

or use `module avail` to see all software and find the available compiler.

The version will be listed. To load a version of software, use the following command:

```
module load compilers/gcc/11.1.0
```

Verify by using this command:

```
module list
```

How to use Compilers on the cluster?

Please use compute nodes to do necessary compilations or building if the software is heavy.

Jump to the compute node with the following command:

```
srun -p main --qos main -n 1 -c 12 --mem 6G --pty bash
```

Where to find help?

If you are stuck on some part or need a new compiler, please contact OIT at the following address.

<https://ua-app01.ua.edu/researchComputingPortal/public/oitHelp>