
Fugaku Commercial Software

CONVERGE

User's Guide

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1 . Preface

Purpose of this document

This document describes how to use CONVERGE, which is maintained by the RIKEN Center for Computational Science (R-CCS) on the supercomputer "Fugaku".

- For general information on how to use Fugaku, please refer to the manuals in the Fugaku Portal
- Please refer to the CONVERGE manual for general CONVERGE usage

Prerequisite

The user shall have executed procedures such as the conclusion of a license agreement for CONVERGE in accordance with the "Flow to Start Using" and shall have received a notice of completion for the software usage environment.

When using commercial software installed on Fugaku, R-CCS and cooperating organizations cooperate with software vendors to manage software licenses (operation checks) and conduct investigations when inquiring about software operation. Therefore, license information and inquiries may be shared among R-CCS, cooperating organizations, and software vendors. Please understand this in advance.

2. Using Tecplot (CONVERGE Bundle Edition)

The following is an example of execution commands for Tecplot. Please modify it as appropriate for your work environment. Refer to the description below for **the red parts**. Tecplot is used in a pre-post environment. For the procedure up to the execution of the following command, please refer to the Fugaku Visualization User Guide on the Fugaku Portal (<https://www.fugaku.r-ccs.riken.jp/docs/manuals>).

```
[PrePost]$ module use /vol0004/apps/isv/CONVERGE/modulefiles
[PrePost]$ module load tecplot_for_converge
[PrePost]$ export RLM_LICENSE_PASSWORD=[License Password]
[PrePost]$ tecplot_for_converge -mesa
```

※ The leading "[PrePost]\$" indicates command execution in a pre-post environment.

2.1. Settings for Tecplot (CONVERGE Bundle Edition)

- module command
Used to set environment variables.
- module use
Specifies where *modulefile* is stored. Do not change.
- module load *modulefile*
Sets environment variables defined in *modulefile*.

```
module load tecplot_for_converge
```

is specified, the latest version installed on Fugaku is used.

Important: Environment variables set by the module load command may include runtime parameters. When specifying runtime parameters, be sure to specify them after the module load command.

To use a specific version, change the *modulefile*.

```
Example: Using 2022.2.0 version
```

```
module load tecplot_for_converge/2022.2.0
```

Keywords for *modulefile* can be confirmed by the following command.

```
module use /vol0004/apps/isv/CONVERGE/modulefiles
module avail tecplot_for_converge
```

The contents set by module can be confirmed with the following commands.

```
module use /vol0004/apps/isv/CONVERGE/modulefiles
module show modulefile
```

- RLM_LICENSE_PASSWORD
Set the password described in the license file.

3. Using CONVERGE Studio

The following is an example of execution commands for CONVERGE Studio. Please modify it as appropriate for your work environment. Refer to the description below for **the red parts**. CONVERGE Studio is used in a pre-post environment. For the procedure up to the execution of the following command, please refer to the Fugaku Visualization User Guide on the Fugaku Portal (<https://www.fugaku.r-ccs.riken.jp/docs/manuals>).

```
[PrePost]$ module use /vol0004/apps/isv/CONVERGE/modulefiles
[PrePost]$ module load CONVERGE_Studio
[PrePost]$ export RLM_LICENSE_PASSWORD=[License Password]
[PrePost]$ CONVERGE_Studio
```

※ The leading "[PrePost]\$" indicates command execution in a pre-post environment.

3.1. Settings for CONVERGE Studio

- module command
Used to set environment variables.
- module use
Specifies where *modulefile* is stored. Do not change.
- module load *modulefile*
Sets environment variables defined in *modulefile*.

```
$ module load CONVERGE_Studio
```

is specified, the latest version installed on Fugaku is used.

Important: Environment variables set by the module load command may include runtime parameters. When specifying runtime parameters, be sure to specify them after the module load command.

To use a specific version, change the *modulefile*.

Example: Using v3.0 version

```
$ module load CONVERGE_Studio/v3.0
```

Keywords for *modulefile* can be confirmed by the following command.

```
$ module use /vol0004/apps/isv/CONVERGE/modulefiles
$ module avail CONVERGE_Studio
```

The contents set by module can be confirmed with the following commands.

```
module use /vol0004/apps/isv/CONVERGE/modulefiles
module show modulefile
```

- RLM_LICENSE_PASSWORD

Set the password described in the license file.

4. Executing CONVERGE

The following is an example of a job script for executing CONVERGE. Please modify it as appropriate for your work environment. Refer to the description below for **the red parts**. This job is submitted to the computation node.

```
#!/bin/bash
#PJM -L "rscgrp=small"
#PJM -L "node=2"
#PJM -L "elapsed=01:00:00"
#PJM --mpi "proc=96"
#PJM -S
#PJM -L "retention_state=0"
#PJM -x PJM_LLIO_GFSCACHE=/vol0004
module use /vol0004/apps/isv/CONVERGE/modulefiles
module load CONVERGE
export RLM_LICENSE_PASSWORD=[License Password]

/home/system/tool/dir_transfer $LD_PATH
mpiexec -np 96 -of [Output filename] converge --super
/home/system/tool/dir_transfer -p $LD_PATH
```

This job script assumes that the job is submitted from the directory where the input files (extension .in, .dat) are stored.

4.1 . Settings for CONVERGE

- #PJM -L "retention_state=0"

Since the performance of CONVERGE may be reduced, run with a setting that does not allow retention transitions. (Reference: [Retention state and its performance impact on applications](#))

- #PJM -x PJM_LLIO_GFSCACHE=/vol0004

When submitting jobs, be sure to specify /vol0004 in the environment variable PJM_LLIO_GFSCACHE.

- module command

Used to set environment variables.

- module use

Specifies where *modulefile* is stored. Do not change.

- module load *modulefile*

Sets environment variables defined in *modulefile*.

`module load CONVERGE`

is specified, the latest version installed on Fugaku is used.

Important: Environment variables set by the module load command may include runtime parameters. When specifying runtime parameters, be sure to specify them after the module load command.

To use a specific version, change the *modulefile*.

`Example: Using 3.0.19 version`

`module load CONVERGE/3.0.19`

Keywords for *modulefile* can be confirmed by the following command.

`$ module use /vol0004/apps/isv/CONVERGE/modulefiles`

`$ module avail CONVERGE`

The contents set by module can be confirmed with the following commands.

`module use /vol0004/apps/isv/CONVERGE/modulefiles`

`module show modulefile`

- RLM_LICENSE_PASSWORD

Set the password described in the license file.

- /home/system/tool/dir_transfer \$LD_PATH

-
- `/home/system/tool/dir_transfer -p $LD_PATH`
Specifies the directory to be used for CONVERGE. Do not change the argument. For more information on `dir_transfer`, refer to the User's Guide (https://www.fugaku.r-ccs.riken.jp/doc_root/ja/user_guides/use_latest/).

5. Change in the environment of CONVERGE

When environmental changes are made to CONVERGE, CONVERGE Studio, and Tecplot, the details and date of the changes will be posted on the Fugaku Portal. Please check the details of the changes and take action if necessary. The following is a list of expected changes, their impact on users, and how to deal with them.

- **CONVERGE Version Upgrade**
If you use the latest version specified with CONVERGE, CONVERGE Studio, or Tecplot in module load, the software version executed after the change date will be changed to the newly latest version. If you want to continue using the currently used version, add product version to the module load specification.
- **CONVERGE specific version removal**
If the version to be deleted is specified in module load, the software will not be available after the change date. Please change the module load setting and use another version.

6. Support

Please contact the Fugaku support (<https://fugaku.zendesk.com/hc/en-us/requests/new>) for Fugaku-specific content. For general information about CONVERGE, please contact your licensee.